

HEALTH DEPARTMENT

REPORT

ON THE HEALTH OF THE

CITY OF LIVERPOOL

DURING

1899,

BY

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Map indicating Districts referred to in Report.

P R E F A C E .

The record in the following pages of some of the facts relating to the health of the City during the past year may be summarised as follows :—

The area of the City comprises 13,236 acres ($20\frac{1}{2}$ square miles).

The estimated population of the City is 668,645.

This figure can only be regarded as approximately correct, but it is probably nearer the number than the figures given by the Registrar General.

If the Census next year is carefully taken, and if those who give the information are carefully taught how to fill up the census paper, this matter will be cleared up. (Pages 3 and 4.)

The figures relating to mortality are contributed to by deaths of 592 persons who were non-residents in the City, but were either attracted to its hospitals or workhouses by the hope of relief in times of sickness and distress, or were landed from vessels in the Port. Deducting these, the annual rate of mortality for the whole City is 24·3.

Particular attention is asked to the table on page 13, showing the influence of age on rates of mortality.

A glance at the diagrammatic map in the appendix will show that the death-rate varies very widely in different districts; the lowest was in the district of Sefton Park (late Toxteth Rural), where it was 10·1 per 1,000; the highest was in the Exchange district, where it was 38·7 per 1,000. An exceptionally large proportion of deaths which occur in Liverpool takes place in workhouses or hospitals.

The crude death-rate is higher by ·9 per 1,000 than it was in the preceding year; this is mainly owing to the prevalence of influenza, to which cause 203 deaths were directly ascribed; but influenza was also associated with a very large number of cases of fatal illness involving chiefly the respiratory system.

Amongst children, measles and whooping-cough were destructive; measles was exceptionally prevalent from May onwards, and was the cause of 321 deaths; whooping-cough is debited with causing 314 deaths. The greatest destruction of infant life occurred as usual during the third quarter of the year from diseases of the bowels occasioned in the ordinary way.

A regrettable feature is the increase in the number of deaths from excessive drinking. (See pages 52 and 53.)

With regard to the work of the hospitals, further evidence is furnished that the best results are obtained when the patient is removed at the early stage of the illness. This is found to be the case at each one of the hospitals, and with each form of sickness. It must be admitted that the delay has not unfrequently been due to the fact that the hospitals are full, and that no beds are available; but it is equally true that the delay also arises from futile attempts on the part of the relatives to nurse the patient, who is sent to hospital only after their strength has broken down, and the patient has suffered by well-intentioned but ineffective attempts to nurse him.

Unfortunately hospital accommodation is limited. No provision has yet been made for measles and whooping-cough, whilst that for diphtheria is wholly inadequate.

The extension of the City Hospital East and the erection of the Hospital at Fazakerley will fill a greatly felt want. The appreciation of the value of isolation is by no means limited to the medical profession—it is shared in by the general public in a remarkable manner.

It is interesting to note the increasing demand for accommodation in the city infectious diseases hospitals, and as this demand is complied with the prevalence of disease is checked almost in proportion.

The steady decline in every form of tuberculosis is testimony to the progress of sanitation in Liverpool. Not only has every form of the disease diminished, but at every age-period there is a marked decline in the mortality from this cause; especially is this the case in the earlier years of life, the saving of life at this period being even more conspicuous than amongst adults. (Page 48.)

As in previous years, a very large number of complaints have been received in respect to jerry-built and insanitary property. (Page 61.)

There was a great increase in the number of references to and from the School Board, chiefly relating to children who come from infected houses and are attending school. (Pages 62 and 97.)

The sanitary supervision of courts and alleys, of common lodging-houses, seamen's licensed lodging-houses, sub-let houses, cellar dwellings, and canal boats is alluded to on pages 64 to 80.

With regard to bakehouses, there are fears that the restriction as to underground bakehouses may be modified. There are grave objections to permitting the construction of bakehouses, any part of which is underground. (Page 81).

Smoke nuisances continue to a very serious extent, and notwithstanding that they are in most cases avoidable, heavy fines continue to be paid. (Page 88.)

The exceedingly onerous and responsible work connected with the ambulance and disinfecting departments is dealt with on pages 100—104.

Considerable attention, yet not more than the importance of the subject demands, has been paid to the food supply. The growing practice of the use of preservatives is to be regarded with the gravest concern. Some of these, under certain conditions, have practically a poisonous effect, and of all casual dangers to health, those arising from poisons in food are the most difficult to guard against. (Pages 134—149.)

The total number of samples taken for chemical analysis was 1,522, and the total number taken for bacteriological analysis was 505. (Pages 130 and 139.)

The Health Committee are seeking powers to still further safeguard the milk supply. (Page 127.)

The Insanitary Property Committee have dealt with one or two blocks of property of exceptional importance, by reason of the amount of disease and mortality known to have been associated with them ever since records of the health of the City have been kept. Their demolition will be a gain to the entire community.

The difficulties in the way of re-housing persons displaced by the demolition of insanitary areas are increasing, because the number of empty houses in the vicinity is relatively few. There is a general impression that the displaced people should be re-housed upon the same site, or as near to it as possible, because their daily work is close at hand. This assumption is incorrect, or correct only to a limited extent. As often as not the work of these people is at docks far distant—sometimes at one end of the City, sometimes at the other—and the best interests of the labourer and his family will be served if they can be housed in the open outskirts, which are, or shortly will be, within cheap and easy access of all parts of the docks. It must be remembered that although these noisome hovels were once in the centre of shipping work, they are so no longer—the work of the docks has extended far away from them. (See pages 183—217.)

The Baths Committee are rendering valuable sanitary service in the provision of baths and wash-houses, and it is gratifying to know not only that the baths provided for boys and baths provided for girls are being used in increasing numbers, but that the tubbing of children who are too small to enter the open-air baths is rapidly increasing, and that parents bring their children regularly each Saturday to have them cleansed. It may be hoped that upon the other days of the week they are cleansed at home.

C E N S U S.



CENSUS.

The Annual Report for 1898 dealt with the many difficulties in correctly estimating the population after the lapse of a few years from the census, and it was there shown that the margin of error increased with the period since the census was taken, until, at the close of the decennial period, the error was found to be so great as to render statistical conclusions doubtful, and comparisons between different towns valueless. Thus, to take two towns of approximately equal population, viz., Newcastle and Salford, the error in the Registrar-General's estimate at the close of the last decennial period in the one case was 11·7 per cent. below the actual amount, whilst in the other case it was 25·5 per cent. above, so that comparisons between the two towns would be misleading to the extent of 37 per cent. The error at that time in the estimate of the population of Liverpool reached 100,000. It is plain from this single example that the comparative table of the death-rates of cities published week by week by the Registrar-General was not dependable.

The remedy for this unsatisfactory state of affairs is to be found in a more frequent census; certainly not more than five years should elapse between census periods.

It is sometimes said that it is a matter of little consequence whether the official returns published weekly, relating to the great cities are correct or not, but in truth much importance attaches to these returns. If the rates of mortality and sickness are represented as less than they really are, as was the case in Liverpool towards the close of the last intercensal period, the necessity for sanitary work is obscured, and conditions which may be eminently unsatisfactory are made to appear in a most favourable light; these circumstances are not calculated to stimulate sanitary work. On the other hand, if the population is under-estimated, sanitary works, however extensive, costly and well directed, will appear to have no effect, or to be associated with an increase of disease and death.

Those familiar with the facts will discount the errors in the incorrect figures issued by the Government Department, week by week, from year's end to year's end; but these figures, quoted far and wide, fall into the hands of many who have not the time, opportunity nor inclination to go beyond them, and who are led to think that sanitary works are but a useless expenditure, and that the working classes are better off in their pent-up slums than they are in airy cottages in open situations.

These are among the practical reasons why the publication of fictitious returns should be discountenanced. Far better that none should be issued, than merely those which must result in mischief and prejudice to the public health, as well as discredit to the department responsible for them.

It is satisfactory that a census will be taken in April, 1901. The taking of the census is a formidable undertaking, especially so in the great cities, where much preparation and care are necessary. It must be recollected that numerous questions are asked, and that the intelligent co-operation of thousands, or even millions, of people is necessary to ensure accuracy. It cannot be doubted that the papers will fall into the hands of large numbers of people, who, without competent advice, will be ignorant of the manner in which they are to be filled up. As evidence of this may be cited the large number of voters in this city who appeared to be unable to fill up a paper in February, 1899, bearing upon one single question. No less than 41 per cent. of spoilt voting papers, presumably from ignorance as to the correct way of expressing the voter's wishes, were sent in on that occasion. If persons are incapable of defining the views which they wish to express upon one simple issue, it is plain that when some half-dozen questions are asked, guidance will be necessary if accuracy is to be ensured.

STATISTICS

RELATING TO

BIRTHS, DEATHS, AND CAUSES OF DEATH, &c.,
ZYMOTIC DISEASES AND THEIR INCIDENCE.

BIRTHS.

The birth-rate in the City of Liverpool is very considerably above the average of the great towns. The mean of the last five years has been 34·0. During 1899 the birth-rate was 33·6.

During the fifty-two weeks of the year 1899 (terminating on Saturday, December 30th, 1899) the returns of the local registrars recorded 22,488 births within the city. Of the total births 11,413 were males and 11,075 were females.

The distribution of the births in the different wards and districts of the city, which together comprises 13,236 acres ($20\frac{1}{2}$ square miles), is indicated upon the accompanying map (see Appendix), and has also been arranged in the following table:—

BIRTHS.

DISTRICTS.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		1899.		Average Rate per 1000 (on estimated population) during the 5 years 1895-1899.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Births.	Rate per 1000	
Scotland	281	257	299	241	294	263	246	244	2125	42·4	44·1
Exchange	148	161	168	159	160	170	162	150	1278	30·3	33·5
Abercromby	219	203	228	206	225	210	217	187	1695	33·4	33·5
Everton	535	548	553	533	563	525	545	526	4328	38·9	39·1
Kirkdale	277	310	295	271	317	312	299	280	2361	32·5	34·2
West Derby—West	412	392	384	384	390	392	372	360	3086	36·5	36·9
Toxteth	441	438	443	423	428	443	466	463	3545	32·8	33·2
Walton	195	195	220	207	192	231	209	237	1686	31·9	28·5
West Derby—East	142	119	139	133	133	113	125	131	1035	24·5	25·3
Wavertree	73	84	82	86	78	85	118	98	704	31·8	29·9
Sefton Park (late Toxteth Rural)	84	81	84	85	79	71	93	68	645	19·7	20·1
City.....	2807	2788	2895	2728	2859	2815	2852	2744	22488	33·6	34·0

The birth-rate still appears higher in the old parts of the city than in the rapidly-extending areas in the suburbs. This is so opposed to what is found usually to obtain in cities, that whilst not losing sight of the high birth-rate amongst the poorer classes, resulting from very early marriage, there remains strong presumptive evidence that the population of the older parts of the city is considerably under-estimated.

The following table shows the population, number of births, and birth-rate per 1,000 during the last twenty-five years :—

Year.	Population.	No. of Births.	Rate per 1,000.
1875	516,063	19,869	38·5
1876	521,544	20,426	39·2
1877	527,083	20,333	38·6
1878	532,681	20,612	38·7
1879	538,338	20,844	38·7
1880	544,056	20,783	38·2
1881	551,617	20,762	37·6
1882	548,065	20,498	37·4
1883	544,547	19,907	36·6
1884	541,031	20,071	37·1
1885	537,548	19,464	36·2
1886	534,088	19,559	36·6
1887	530,649	18,414	34·7
1888	527,233	17,777	33·7
1889	523,838	17,676	33·7
1890	520,466	17,592	33·8
1891	517,145	17,832	34·5
1892	513,818	17,758	34·6
1893	510,514	18,328	35·9
1894	507,230	17,893	35·3
*1895	638,291	22,006	34·5
1896	641,063	21,943	34·2
1897	644,129	22,280	34·6
1898	668,645	22,227	33·2
1899	668,645	22,488	33·6

* City area extended.

The following table shows the *natural* increase or decrease of population, that is, the increase or decrease in the number of births over deaths during the year 1898, in the several districts of the City:—

DISTRICTS.							Births.	Deaths.	Increase of Popu- lation.	Decrease of Popu- lation.
Scotland	...	...	...	...	...	...	2,125	1,865	260	—
Exchange	...	...	...	...	...	...	1,278	1,634	—	356
Abercromby	...	...	...	...	...	...	1,695	1,258	437	—
Everton	...	...	...	...	...	...	4,328	3,143	1,185	—
Kirkdale	...	...	...	...	...	...	2,361	1,578	783	—
West Derby—West	...	...	...	...	...	...	3,086	1,841	1,245	—
Toxteth	...	...	...	...	...	...	3,545	2,678	867	—
Walton	...	...	...	...	...	...	1,686	873	813	—
West Derby—East	...	...	...	...	...	...	1,035	697	338	—
Wavertree	...	...	...	...	...	...	704	372	332	—
Sefton Park (late Toxteth Rural)	...	...	...	...	...	...	645	330	315	—
City	...	...	...	...	...	...	22,488	16,269	6,219	—
Hospitals (Residences outside City)	...	...	...	...	...	...	—	592	—	—
Total	...	...	...	...	...	...	22,488	16,861	5,627	—

In only one district, viz., Exchange, is any decrease shown, the nett result in the City showing an increase of births over deaths of 5,627.

The following table gives the estimated population, number of births recorded, birth-rate, and population per acre of thirty-six of the large towns of the United Kingdom.

TOWNS.							Estimated Popula- tion in the middle of the year 1899.	Births in 52 weeks ending 30th Dec., 1899.	Annual Rate to 1,000 of population.
London	...	...	...	...	...	...	4,546,752	133,120	29·4
West Ham	...	...	...	...	...	...	300,241	8,891	29·7
Croydon	...	...	...	...	...	...	127,759	3,204	25·1
Brighton	...	...	...	...	...	...	123,226	3,058	24·9
Portsmouth	...	...	...	...	...	...	190,741	4,980	26·2
Plymouth	...	...	...	...	...	...	100,637	2,992	29·8
Bristol	...	...	...	...	...	...	320,911	9,345	29·2
Cardiff	...	...	...	...	...	...	185,826	5,309	28·6
Swansea	...	...	...	...	...	...	103,722	2,870	27·7
Wolverhampton	...	...	...	...	...	...	88,821	3,123	35·3
Birmingham	...	...	...	...	...	...	514,956	17,609	34·3
Norwich	...	...	...	...	...	...	113,266	3,290	29·1
Leicester	...	...	...	...	...	...	213,851	6,273	29·4
Nottingham	...	...	...	...	...	...	239,384	6,910	28·9
Derby	...	...	...	...	...	...	106,401	2,984	28·1
Birkenhead	...	...	...	...	...	...	115,162	3,437	29·9
Bolton	...	...	...	...	...	...	162,221	4,838	29·9
Manchester	...	...	...	...	...	...	543,902	17,692	32·6
Salford	...	...	...	...	...	...	218,244	7,378	33·9
Oldham	...	...	...	...	...	...	150,772	3,732	24·8
Burnley	...	...	...	...	...	...	113,081	2,848	25·3
Blackburn	...	...	...	...	...	...	135,154	3,643	27·0
Preston	...	...	...	...	...	...	117,622	3,526	30·1
Huddersfield	...	...	...	...	...	...	103,464	2,374	23·0
Halifax	...	...	...	...	...	...	97,721	2,248	23·1
Bradford	...	...	...	...	...	...	236,241	5,506	23·4
Leeds	...	...	...	...	...	...	423,889	12,937	30·6
Sheffield	...	...	...	...	...	...	361,169	12,446	34·6
Hull	...	...	...	...	...	...	234,270	8,003	34·3
Sunderland	...	...	...	...	...	...	145,613	5,184	35·7
Gateshead	...	...	...	...	...	...	106,552	3,890	36·6
Newcastle-on-Tyne	...	...	...	...	...	...	228,625	7,164	31·4
Edinburgh	...	...	...	...	...	...	298,927	8,220	27·6
Glasgow	...	...	...	...	...	...	733,903	24,249	33·1
Dublin	...	...	...	...	...	...	349,594	10,618	30·5
LIVERPOOL	...	...	...	...	...	...	668,645	22,488	33·6

The above table is, with the exception of Liverpool, taken without correction from the Registrar General's Return; it can, therefore, only be regarded as approximately correct.

The following table is prepared from the Census Returns, from Reports of the Registrar General, and from other sources, and indicates the estimated rate of increase per cent. of the population of thirty-four large towns since the last Census.

TOWNS.	Population Census, 1891.	Estimated Population, 1899.	Estimated Increase.	Rate of Estimated Increase per cent. of Population since 1891.
London	4,232,118	4,546,752	314,634	7·4
West Ham	204,903	300,241	95,338	46·5
Croydon	102,695	127,759	25,064	24·4
Brighton	115,873	123,226	7,353	6·3
Portsmouth	159,251	190,741	31,490	19·7
Plymouth	84,248	100,637	16,389	19·4
Bristol	289,280	320,911	31,631	10·9
Cardiff	128,915	185,826	56,911	44·1
Swansea	90,349	103,722	13,373	14·8
Wolverhampton	82,662	88,821	6,159	7·4
Birmingham	478,113	514,956	36,843	7·7
Norwich	100,970	113,266	12,296	12·1
Leicester	174,624	213,851	39,227	22·4
Nottingham	213,877	239,384	25,507	11·9
Derby	94,146	106,401	12,255	13·0
Birkenhead	99,857	115,162	15,305	15·3
Bolton	115,002	162,221	47,219	41·0
Manchester	505,368	543,902	38,534	7·6
Salford	198,139	218,244	20,105	10·1
Oldham	131,463	150,772	19,309	14·6
Burnley	87,016	113,081	26,065	29·9
Blackburn	120,064	135,154	15,090	12·5
Preston	107,573	117,622	10,049	9·3
Huddersfield	95,420	103,464	8,044	8·4
Halifax	89,832	97,721	7,889	8·7
Bradford	216,361	236,241	19,880	9·1
Leeds	367,505	423,889	56,384	15·3
Sheffield	324,243	361,169	36,926	11·3
Hull	200,044	234,270	34,226	17·1
Sunderland	131,015	145,613	14,598	11·1
Gateshead	85,692	106,552	20,860	24·3
Newcastle-on-Tyne	186,300	228,625	42,325	22·7
Glasgow	658,708	733,903	75,195	11·4
LIVERPOOL	629,443	668,645	39,202	6·2

DEATHS.

The most interesting, as well as the most important statistics are those dealing with mortality and its causes. These are set forth in the ensuing pages; the total death-rate of the city during the year was 24·3 per 1,000, the average rate during the five years (1895-9) since the extension of the city boundaries was 23·4, there is consequently an increase of ·9 upon the five years' average.

Quite apart from conditions of sanitation, mortality varies widely at different age-periods; consequently the death-rate of the community is largely influenced by the proportions living at each age-period; the effect of a high birth-rate is considerable, in raising the crude death-rate.

The following table shows the annual rate of mortality per 1,000 at each of twelve age-periods during last year in Liverpool, as well as the total number of deaths. The differences which the figures show are very striking:—

1899.	Under 1 year.	1 to 2	2 to 5	5 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 and upwards.	Total at all Ages.
Rate of Mortality per 1,000 living at ages indi- cated.	242·4	94·5	20·6	6·2	3·4	6·6	12·5	20·2	37·0	65·1	110·3	210·2	24·3
Total Number of Deaths at each Age Period ...)	4450	1509	1080	483	482	794	1185	1443	1705	1660	1104	374	16269

If, for example, we could conceive that the whole population of Liverpool consisted of persons between the ages of 20 and 30, the death-rate last year would have been 6·6 per 1,000; if, on the other hand, we could conceive that it consisted entirely of people under 1 year of age, the death-rate would be about 242·4 per 1,000, and if above 60 years, 84·1 per 1,000, and this with absolutely no change whatever in the condition of municipal sanitation.

Variations in the proportions of people living at different ages takes place with extreme slowness, and have but a trifling effect in modifying aggregate results.

The deaths in public institutions of 592 non-residents, equal to a fraction of ·9 per 1,000, have been eliminated from the table.

The following table gives the total number of deaths allocated to each district:—

DISTRICTS.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Annual.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Deaths.
Scotland	244	203	219	169	282	283	247	218	1865
Exchange	214	166	221	194	217	195	231	196	1634
Abercromby	177	165	172	131	160	157	151	145	1258
Everton	387	357	363	303	482	441	406	404	3143
Kirkdale	217	214	183	134	246	189	205	190	1578
West Derby (West)..	217	240	205	187	317	234	224	217	1841
Toxteth	354	343	252	264	399	384	335	347	2678
Walton.....	142	107	84	73	111	141	110	105	873
West Derby (East)...	86	81	89	83	98	84	88	88	697
Wavertree	33	51	46	47	71	46	43	35	372
Sefton Park	41	46	42	27	51	37	49	37	330
(late Toxteth Rural)									
Deaths of Non-Resi- dents of the City in Workhouses and Hospitals.....	100	52	103	48	65	66	103	55	592
City	2212	2025	1979	1660	2499	2257	2192	2037	16,861

DEATHS IN PUBLIC INSTITUTIONS.

Deaths in Public Institutions are referred to the Wards from whence the patients came, but the following table shows that the deaths of 4,278 persons occurred in the undermentioned Institutions for the treatment of the sick:—

					Total Deaths.	Non-Residents of City.
Parish Workhouse	...	...	...	...	1,278	75
Royal Infirmary	...	...	...	...	331	98
Children's Infirmary	...	...	...	...	112	11
Lying-in Hospital	...	...	...	...	11	2
Consumption Hospital	...	...	...	...	26	12
Hahnemann Hospital	...	...	...	...	24	2
Northern Hospital	...	...	...	...	170	36
Stanley Hospital	...	...	...	...	130	10
Royal Southern Hospital	...	...	...	...	234	45
Mill Road Infirmary	...	...	...	...	614	65
Hospital for Women	...	...	...	...	25	20
City Hospital North	...	...	...	...	108	4
Do. South	...	...	...	...	109	1
Do. Parkhill	...	...	...	...	63	1
Do. East, Mill Lane	...	...	...	...	36	—
Do. Priory Road	...	...	...	...	6	1
Walton Workhouse	...	...	...	...	535	125
Belmont Road Workhouse	...	...	...	...	48	26
St. Joseph's Home	...	...	...	...	19	17
Toxteth Workhouse	...	...	...	...	312	7
Home for Incurables	...	...	...	...	13	6
Turner Memorial Home	...	...	...	...	10	5
St. Augustine's Home	...	...	...	...	8	4
Kirkdale Home	...	...	...	...	16	1
Walton Gaol	...	...	...	...	18	10
Other Public Institutions	...	...	...	...	22	8
					4,278	592

From the returns made as to the residences of these persons 3,686 of the deaths in these establishments are classified in the districts from whence the patients were removed, viz.:—470 under Scotland district, 645 under Exchange district, 383 under Abercromby district, 666 under Everton, 299 under Kirkdale, 367 under West Derby (west), 536 under Toxteth, 133 under Walton, 108 under West Derby (east), 50 under Wavertree, and 29 under Sefton Park (late Toxteth rural); 454 were non-residents who had sought relief in Liverpool Institutions, and the remainder, 138, were waifs, strangers to the city, whose previous residences were unknown. In the absence of information, these latter have been recorded as deaths of non-residents.

The results of this allocation of deaths in public institutions to the districts from whence the patients had been removed, are shown in the following table, from which a calculated rate of mortality per 1,000 per annum of the inhabitants has been made. The rates are calculated upon a population increasing or decreasing in the same ratio as between 1881 and 1891, but with the proportionate corrections consequent upon the revised estimate as explained in the Report for 1898.

DISTRICTS.	Estimated population.	1899.		Average Rate per 1000 (on esti- mated popu- lation) dur- ing the five years 1895 - 1899.
		Deaths.	Rate per 1000	
Scotland	50,053	1,865	37·2	36·8
Exchange	42,137	1,634	38·7	38·7
Abercromby	50,642	1,258	24·8	24·6
Everton	111,106	3,143	28·2	26·1
Kirkdale	72,598	1,578	21·7	21·3
West Derby (West)	84,452	1,841	21·8	22·3
Toxteth	107,916	2,678	24·8	23·0
Walton	52,780	873	16·5	15·4
West Derby (East)	42,141	697	16·5	17·0
Wavertree	22,117	372	16·8	16·0
Sefton Park (late Toxteth Rural)	32,703	330	10·1	10·1
City	668,645	16,269	24·3	23·4

The District Registrars' Returns show that there were 20 deaths (13 of women and 7 of men) at the age of 90 and upwards, viz., 3 males and 7 females at 90, 2 females at 91, 1 male at 92, 1 male and 1 female at 93, 1 male at 94, 1 female at 95, 1 male and 1 female at 96, and 1 female at 98.

The death-rate per 1,000 for 1899 in each of the districts of the city is indicated upon the appended map. Scotland and Exchange districts contain a great number of common lodging-houses, some of which are resorted to by a non-resident and very migratory population. This class tends to swell the mortality of these two districts.

There is something to be learned of the social condition of a locality from the proportion of deaths which take place in the public institutions of the city, more especially in the workhouses.* It may justly be inferred that those who seek shelter in establishments of these kinds are those who in times of sickness have no other refuge. If the proportion is high, it generally implies poverty and want; but on the other hand it may also, and no doubt does, imply that the institutions have a wide reputation, and attract sufferers to them not only from within the city, but from a distance. Probably both of these conditions exercise influence in Liverpool.

Be that as it may, the fact appears to be that there is no city in England in which so large a proportion of the deaths take place in workhouses and hospitals.

It is instructive to compare the figures with those of other great towns. The following table shows the percentage of deaths which have occurred in public institutions during the 5 years, 1895-99, in the great towns of Birmingham, Leeds, Manchester and Liverpool:—

	1895.	1896.	1897.	1898.	1899.	Average.
Birmingham.....	16·8	14·9	14·0	15·3	16·1	15·4
Leeds.....	10·9	11·9	10·8	11·8	12·4	11·5
Manchester	19·2	19·7	20·0	19·0	19·7	19·5
Liverpool	20·7	23·8	23·1	24·7	25·3	23·5

The following table gives the estimated population, the number of deaths recorded, death-rate, and population per acre of thirty-six of the large towns of the United Kingdom:—

TOWNS.							Estimated Popula- tion in the middle of the year 1899	Deaths in 52 weeks ending 30th Dec, 1899.	Annual Rate to 1000 of Popula- tion.	Popula- tion per Acre
London	...	...	...	...	...	...	4546752	89689	19·8	60·9
West Ham	...	...	...	...	...	...	300241	5004	16·7	63·8
Croydon	...	...	...	...	...	...	127759	1916	15·0	14·2
Brighton	...	...	...	...	...	...	123226	2329	19·0	48·7
Portsmouth	...	...	...	...	...	...	190741	3747	19·7	40·9
Plymouth	...	...	...	...	...	...	100637	2180	21·7	43·9
Bristol	...	...	...	...	...	...	320911	5840	18·2	27·5
Cardiff	...	...	...	...	...	...	185826	2857	15·4	30·6
Swansea	...	...	...	...	...	...	103722	1877	18·1	20·4
Wolverhampton	...	...	...	...	...	...	88821	1932	21·8	25·2
Birmingham...	...	...	...	...	...	...	514956	10704	20·8	40·5
Norwich	...	...	...	...	...	...	113266	1953	17·3	15·0
Leicester	...	...	...	...	...	...	213851	3777	17·7	24·9
Nottingham	...	...	...	...	...	...	239384	4771	20·0	21·8
Derby	...	...	...	...	...	...	106401	1796	16·9	30·8
Birkenhead	...	...	...	...	...	...	115162	2201	19·2	33·0
Bolton	...	...	...	...	...	...	162221	3218	19·9	10·6
Manchester	...	...	...	...	...	...	543902	13347	24·6	42·1
Salford	...	...	...	...	...	...	218244	5181	23·8	42·2
Oldham	...	...	...	...	...	...	150772	3078	20·5	31·9
Burnley	...	...	...	...	...	...	113081	2214	19·6	28·8
Blackburn	...	...	...	...	...	...	135154	2579	19·1	19·4
Preston	...	...	...	...	...	...	117622	2679	22·8	28·8
Huddersfield...	...	...	...	...	...	...	103464	1671	16·2	8·7
Halifax	...	...	...	...	...	...	97721	1779	18·3	11·5
Bradford	...	...	...	...	...	...	236241	4344	18·4	21·9
Leeds...	...	...	...	...	...	...	423889	8090	19·1	19·6
Sheffield	...	...	...	...	...	...	361169	7980	22·2	18·4
Hull	...	...	...	...	...	...	234270	4508	19·3	26·0
Sunderland	...	...	...	...	...	...	145613	3119	21·5	44·2
Gateshead	...	...	...	...	...	...	106552	1997	18·8	34·0
Newcastle-on-Tyne	...	...	...	...	...	...	228625	4687	20·6	42·6
Edinburgh	...	...	...	...	...	...	298927	5849	19·6	47·8
Glasgow	...	...	...	...	...	...	733903	15828	21·6	61·9
Dublin	...	...	...	...	...	...	349594	10729	30·8	14·2
LIVERPOOL	...	...	...	...	...	...	668645	16269	24·3	50·5

The above table is, with the exception of Liverpool, taken without correction from the Registrar General's Return; it can, therefore, only be regarded as approximately correct.

The next table indicates the seasonal mortality, and the incidence, in the various wards of the City, of infantile mortality, and the proportion of deaths under five years to the total deaths:—

DISTRICTS.	Quarters.				Total Deaths.	Deaths under 5 years of age.	Per Cent- age of Deaths under 5 years to Total Deaths.	Per Cent- age of Deaths under 1 year to Total Births.
	March.	June	Sept.	Dec.				
Scotland	177	150	361	243	1,865	931	49·9	25·1
Exchange	103	119	209	140	1,634	571	34·9	27·4
Abercromby	76	87	142	80	1,258	385	30·6	14·5
Everton	269	245	579	359	3,143	1,452	46·2	21·0
Kirkdale	173	118	252	163	1,578	706	44·7	18·8
West Derby (West).	170	164	371	171	1,841	876	42·1	18·8
Toxteth	254	160	470	279	2,678	1,163	43·4	20·4
Walton	111	45	161	94	873	411	47·0	16·5
West Derby (East) .	48	47	106	58	697	259	37·1	16·6
Wavertree	31	35	67	37	372	170	45·7	16·4
Sefton Park	22	24	45	24	330	115	34·8	13·6
(late Toxteth Rural)								
Workhouses & Hos- pitals (Residences outside City)	9	11	18	13	592	51	8·6	...
City	1,443	1,205	2,781	1,661	16,861	7,090	42·0	19·9

Inquests were held on the bodies of 129 infants, under 12 months of age, who had been suffocated.

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

The proportion which the deaths of children under five years of age has borne to the total deaths in the various wards of the City during the last five years, follows. Also the proportion of deaths of infants under one to every hundred births.

DISTRICTS.	1895.		1896.		1897.		1898.		1899.	
	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.	Percentage of Deaths under 5 years to Total Deaths.	Percentage of Deaths under 1 year to Total Births.
Scotland	48·3	25·5	47·8	22·2	48·4	24·2	50·4	23·8	49·9	25·1
Exchange	38·8	26·9	37·8	23·7	41·4	28·2	37·8	26·6	34·9	27·4
Abercromby	31·8	16·8	36·1	13·2	35·2	14·6	33·4	16·1	30·6	14·5
Everton	48·8	20·6	47·5	18·5	49·6	21·0	46·8	19·4	46·2	21·0
Kirkdale	47·7	20·4	47·3	17·4	46·1	19·3	46·4	17·5	44·7	18·8
West Derby (West)	47·1	19·0	44·2	16·8	48·9	18·9	45·5	17·7	42·1	18·8
Toxteth.....	47·1	20·6	41·4	16·2	48·2	20·9	43·5	18·3	43·4	20·4
Walton	48·3	18·0	42·3	13·4	44·3	15·3	42·2	12·5	47·0	16·5
West Derby (East).....	29·8	12·9	39·4	17·5	37·6	18·4	30·7	13·9	37·1	16·6
Wavertree	36·7	15·6	43·8	13·9	45·9	17·1	46·4	16·8	45·7	16·4
Sefton Park	38·6	13·6	33·4	10·4	36·3	14·4	37·0	12·2	34·8	13·6
(late Toxteth Rural)										
Workhouse and Hospitals (Residences outside of City)	7·8	...	12·5	...	12·6	...	10·2	...	8·6	...
Whole City	43·5	20·2	41·9	17·5	44·7	20·1	42·1	18·4	42·0	19·9

CAUSES OF DEATH.

The following table gives a classification of the actual causes of death during the four quarters of the year, grouped under 16 classes.

Full details as to the causes of death are set forth in tables (*A* and *C*) in the Appendix; in these tables the age at death and the district in which it occurred will also be found.

CLASSES.	QUARTERS.				YEAR 1899.
	March	June.	Sept.	Dec.	
1. Zymotic and Septic Diseases	399	423	1,427	543	2,792
2. Diseases of Uncertain or Variable Seat.....	145	158	161	140	604
3. Constitutional Diseases.....	46	43	33	28	150
4. Tubercular Diseases	461	439	414	440	1,754
5. Diseases of the Nervous System	478	416	412	440	1,746
6. ,, ,, Circulatory ,, 	288	295	247	286	1,116
7. ,, ,, Respiratory ,, 	1,241	858	577	1,152	3,828
8. ,, ,, Digestive ,, 	242	200	625	298	1,365
9. ,, ,, Lymphatic ,, 	3	7	2	5	17
10. ,, ,, Urinary ,, 	110	95	84	99	388
11. ,, ,, Re-productive ,,,	18	23	20	23	84
12. ,, ,, Joints, &c. 	13	10	6	10	39
13. ,, ,, Integumentary System	17	6	7	15	45
14. Dietetic Diseases.....	7	5	11	5	28
15. Developmental Diseases	494	409	508	450	1,861
16. Causes investigated at Coroner's Inquests ...	267	245	219	290	1,021
Causes not specified	8	7	3	5	23
All Causes	4,237	3,639	4,756	4,229	16,861

ZYMOTICS.

The following table shows the localities and the periods of the fatal prevalence of Zymotic diseases during 1899 :—

DISTRICTS.	Deaths from all causes.	ZYMOTICS.				
		Quarters.				Per Centage of Zymotic Deaths to Deaths from all causes.
		March.	June.	Sept.	Dec.	
Scotland.....	1,865	30	52	214	89	20·64
Exchange	1,634	27	37	92	41	12·05
Abercromby	1,258	26	34	54	28	11·28
Everton	3,143	61	92	299	114	18·01
Kirkdale	1,578	43	35	150	41	17·04
West Derby (West).....	1,841	61	59	157	50	17·76
Toxteth	2,678	84	52	239	102	17·81
Walton	873	33	13	108	19	19·81
West Derby (East)	697	13	14	57	32	16·64
Wavertree	372	5	10	33	9	15·32
Sefton Park	330	9	13	15	12	14·84
(late Toxteth Rural)						
Workhouses and Hospitals (Residences outside City)	592	7	12	9	6	5·74
City	16,861	399	423	1,427	543	16·55

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

This class of diseases occasioned 2,792 deaths during the year 1899, and accounted for 16·5 per cent. of the total mortality within the City during this period. The death-rate from zymotic diseases per 1,000 was 4·1. The deaths were as follows:—

	QUARTERS.				YEAR	
	March.	June.	Sept.	Dec.	1899.	
Total Zymotics	399	423	1,427	543	2,792	
Smallpox	—	1	—	—	1	
Measles	29	102	104	86	321	
Scarlatina	44	33	41	46	164	
Diphtheria	60	31	43	58	192	
Membranous Croup	8	5	6	7	26	
Whooping Cough	49	52	90	123	314	
Diarrhœa	28	34	1,022	74	1,158	
Influenza	98	73	5	27	203	
Fever {	Typhus	5	3	—	5	13
	Typhoid	27	50	48	57	182
	Simple Continued	—	1	1	2	4
Other Zymotics.....	51	33	67	58	214	

NOTE.—Influenza appears as a predisposing cause in the case of many deaths primarily ascribed to Systemic Disease (page 21).

SMALLPOX.

Smallpox was introduced into the City on six occasions, the total cases numbering ten. In five cases the patients were removed direct from ships, another case was a Russian emigrant, and the rest of the patients were removed from their homes. In each case every possible precaution was taken to prevent any extension of the disease, by isolation of the infected persons, disinfecting of the infected clothing, houses, &c., and revaccination of those who had been exposed to infection, and fortunately these precautions were successful. (See page 100.)

There was one death during the year, a seaman (Lascar), who was unvaccinated.

The following extract from the Report of the Royal Commission on Vaccination, which for seven years laboriously considered, in every conceivable detail, the effects of vaccination upon smallpox, cannot be too highly emphasised:—

“It does appear to us impossible to resist the conclusion that vaccination has a protective effect in relation to smallpox.”

“The beneficial effects of vaccination are most experienced by those in whose case it has been most thorough. We think it may fairly be concluded that where the vaccine matter is inserted in three or four places it is more effectual than when introduced into one or two places only.”

“ We can see nothing to warrant the conclusion that in this country vaccination might safely be abandoned and replaced by a system of isolation.”

“ We are of opinion that the State ought to continue to promote the vaccination of the people. We are not prepared to recommend that the State should cease to require vaccination, and trust entirely to a voluntary adoption of the practice.”

In Section 524 they say, “ After careful consideration and much study of the subject, we have arrived at the conclusion that it would conduce to increased vaccination if a scheme could be devised which would preclude the attempt (so often a vain one) to compel those who are honestly opposed to the practice to submit their children to vaccination, and at the same time leave the law to operate, as at present, to prevent children remaining unvaccinated owing to the neglect or indifference of the parent.” In reference to this matter, the Commission further say that “ every effort should be made to remove the causes which now render vaccination burdensome and tend to its discouragement.”

SMALL-POX DURING THE LAST THIRTY-SEVEN YEARS.

Years of Increase.	No of Cases.	Deaths.	Years of Subsidence.	No of Cases.	Deaths.
1863	Unrecorded	100			
1864	„	482			
1865	„	459			
1866	„	102			
			1867	Unrecorded	22
			1868	„	18
			1869	„	20
1870	„	174			
1871	„	1,919			
1872	„	50			
			1873	„	10
			1874	„	30
			1875	„	29
1876	„	386			
1877	1,660	299			
			1878	35	3
			1879	12	...
			1880	14	2
			1881	262	34
			1882	67	6
			1883	126	26
1884	832	106			
			1885	375	46
			1886	234	29
			1887	23	1
			1888	27	1
			1889	9	1
			1890	2	...
			1891	21	2
			1892	177	13
			1893	75	9
			1894	229	20
			1895	130	12
			1896	8	...
			1897	6	..
			1898	17	2
			1899	10	1

TYPHUS FEVER.

This disease, always associated with filth, squalor, and drunkenness, has never been absent for any lengthened period from Liverpool, but the cases of typhus have gradually diminished as sanitary administration has become more precise.

The disease is particularly liable to spread amongst dirty, ill-fed, and intemperate persons, and incessant watchfulness is necessary in order to hold it in check.

It is gratifying again to report that the number of cases and the number of deaths from Typhus Fever during the year 1899 have been still further diminished, and were last year lower than they ever were before.

There were 70 cases found, 13 of which, as the table shows, resulted fatally.

AGES AT DEATH.											
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & up- wards.	All Ages.
—	—	2	1	—	1	2	4	1	2	—	13

The deaths occurred chiefly at the prime of life, this disease being particularly fatal to adults.

The following cases illustrate the importance of the daily visits which are made to houses which have been infected with typhus, as well as the importance of keeping under supervision every person who is known to have been in contact with the patient. (See page 100.)

An interesting series of cases is shewn on the accompanying diagram. The figures indicate the sequence in regard to dates, the lines indicating the connection between the infected people. The cases occurred in quick succession.

The majority of the cases were not notified in the usual way, 17 being found in the course of a strict house-to-house visitation, which was carried out in the district, and by daily visitation at the houses where cases had occurred.

Case No. 1 was a lodger with the L. family, and was admitted to a Workhouse Hospital to be treated for rheumatism.

Case No. 3 was a member of the L. family, and was sent to a General Hospital certified to be suffering from pneumonia.

Cases 4, 5 and 7 were three daughters of the same family.

Case No. 8 was a young man who kept company with one of these girls.

Case No. 6 was the father of the L. family, and he died in the City Infectious Hospital. A number of people assembled at his house at the time of the funeral, but the body was not taken home. From two to three weeks after this the cases numbered 9 to 17, and also 23, were removed to hospital, viz., two sons, one daughter, son-in-law, and five visitors.

A fresh centre of infection was set up by Case No. 14, a married daughter of the deceased man. This woman, with her husband, lived about two miles away, but were in the habit of visiting at the infected house.

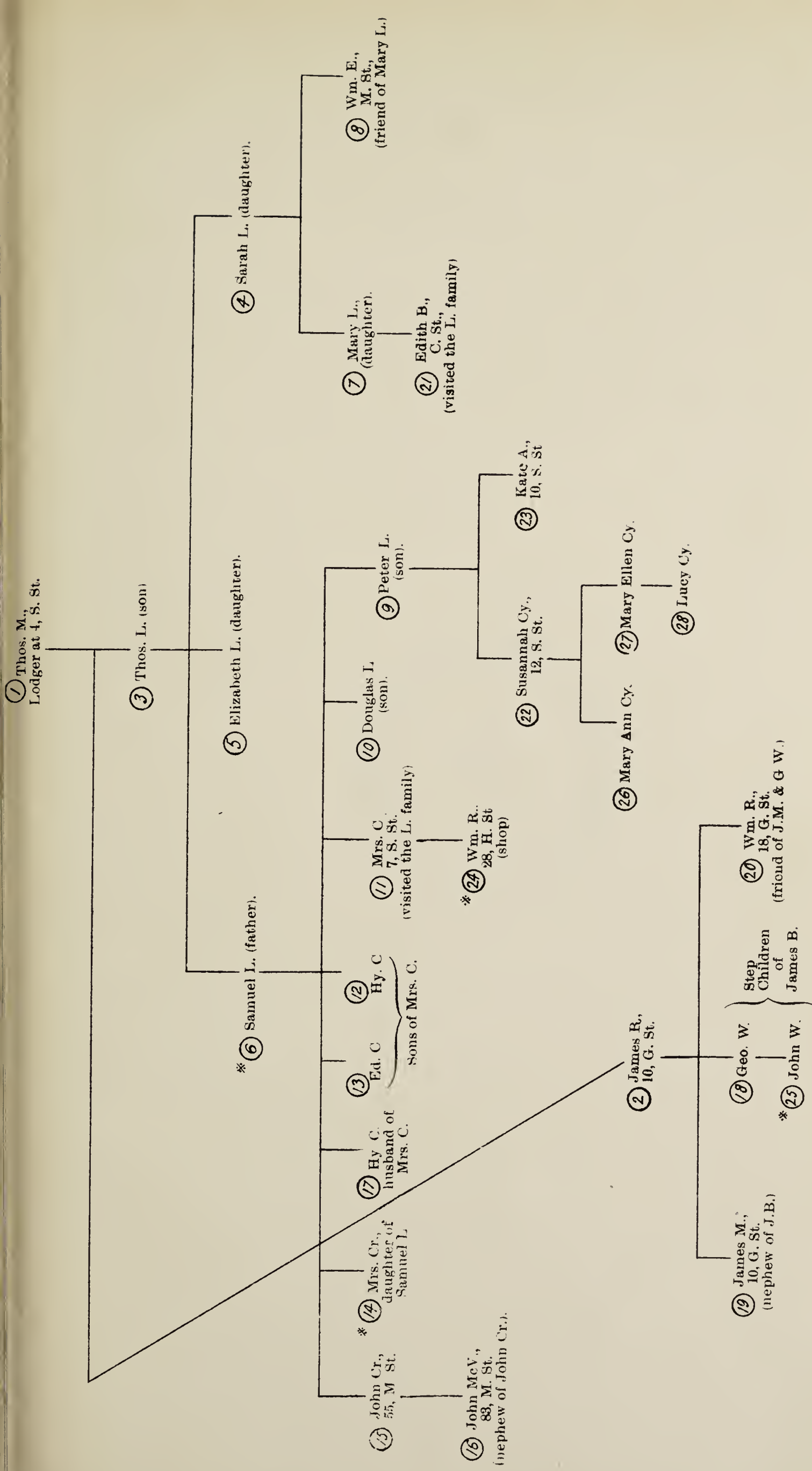
Case 22 was a child living in the same street, and who was in the habit of playing with the infected children. The infection was thus transferred to another house, and gave rise to Cases 26, 27 and 28.

No. 24 was a man who kept a small shop where people from the infected houses were in the habit of dealing.

The smaller series of cases commenced with No. 2, a man, James B., said to have been of intemperate habits. This man was a friend of the L. family. His two step-children and his nephew, all living with him, were infected with typhus, and a lad who lived four doors off in the same street, and played with the other children, was also found to have the disease. The cases are numbered 18, 19, 20 and 25.

It should be noted that a number of the adults, both male and female, worked at the same place.

The fatal cases are marked thus *



The above Diagram shows (a) the manner in which Typhus Fever may spread among personal acquaintances and from street to street; (b) the readiness with which a single infected centre multiplies into many foci of infection, forming the basis of a general outbreak; (c) the necessity for the close watch kept on all persons known to have been exposed to infection.



List of streets in the city where cases of TYPHUS FEVER occurred
during the year 1899.

STREETS.	Cases.	Deaths.	STREETS.	Cases.	Deaths.
Athol	1	...	Hopwood	9	2
Beresford.....	2	2	Hyslop	1	1
Bevington	1	...	Lowwood	1	1
Blenheim.....	1	...	Mill	1	...
Broom	1	...	Mozart	3	1
Cam	1	...	Naylor	1	...
Denbigh	6	...	Park Place	1	...
Foley	6	...	Penrhyn	1	1
Gascoyne	2	...	Rose Hill	1	1
Glenny	5	1	Sandys	14	1
Gordon.....	1	...	Smith	1	...
Grafton	3	...	Wolfe	1	...
Harford	1	1	Walmsley.....	4	1

TYPHOID FEVER.

There was an increase in the number of cases of Typhoid Fever during the year, and the deaths were also more numerous than in 1898; that number is 14 above the average of the five years.

There is growing evidence to show the dangers of the communicability of typhoid fever by direct infection, or by means of food. In regard to this latter, raw shell fish have been proved to be the means of communicating the disease. Oysters, mussels, cockles, &c., fed upon sewage of towns, should be avoided. (See page 162.)

Upwards of 67 per cent. of the total number of cases notified during the year were removed to hospital. (See page 221.)

The following table gives the ages at death of the fatal cases:—

AGES AT DEATH.											
Under 1 year.	1—	2—	5—	10—	15—	20 —	30 —	40—	50—	60 & up- wards.	All Ages.
—	—	6	18	12	21	53	43	22	4	3	182

Table showing the locality and season, of deaths from the various forms of Continued Fever during the year 1899.

DISTRICTS.	1st Quarter.				2nd Quarter.				3rd Quarter.				4th Quarter.				YEAR.			
	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	Total.	Typhus.	Typhoid.	Simple Continued.	TOTAL.
Scotland.....	1	3	—	4	3	9	—	12	—	1	—	1	—	3	—	3	4	16	—	20
Exchange	1	1	—	2	—	4	1	5	—	3	—	3	—	4	—	4	1	12	1	14
Abercromby	1	1	—	2	—	3	—	3	—	3	—	3	—	5	—	5	1	12	—	13
Everton	2	3	—	5	—	6	—	6	—	13	—	13	—	11	1	12	2	33	1	36
Kirkdale.....	—	3	—	3	—	5	—	5	—	5	—	5	—	3	—	3	—	16	—	16
West Derby (West)	—	5	—	5	—	8	—	8	—	6	—	6	—	1	6	1	1	25	1	27
Toxteth	—	6	—	6	—	6	—	6	—	9	1	10	—	4	13	—	4	34	1	39
Walton	—	1	—	1	—	2	—	2	—	3	—	3	—	—	3	—	—	9	—	9
West Derby (East)	—	3	—	3	—	3	—	3	—	1	—	1	—	—	7	—	—	14	—	14
Wavertree	—	—	—	—	—	—	—	—	—	2	—	2	—	—	—	—	—	2	—	2
Sefton Park	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	1	—	1
(late Toxteth Rural)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hospitals (Residences out of City) ...	—	1	—	1	—	4	—	4	—	1	—	1	—	2	—	2	—	8	—	8
TOTAL FOR WHOLE CITY ...	5	27	—	32	3	50	1	54	—	48	1	49	5	57	2	64	13	182	4	199

In arranging this table, all deaths occurring in hospitals have been transferred to the districts from whence the patients came.

SCARLATINA.

There was a still further, although slight, reduction in the number of cases of this disease during the past year, but the demands for the isolation in hospital of patients suffering from Scarlatina were often exceedingly difficult to meet, and at times had to be postponed. Yet out of a total of 2,416 cases reported, no less than 1,537 were removed to hospital, showing, as was anticipated, an *increasing* proportion of cases isolated, out of a *decreasing* total of cases. The percentage of the total number of patients removed to hospital during each of the last five years has been steadily increasing as follows:—38·3, 44·3, 54·6, 60·5 and 63·6. This public appreciation of the value of isolation is noteworthy.

The type of the disease cannot be regarded as severe, but there were more fatal cases than last year, the highest mortality being between 2 and 3 years of age.

DEATHS FROM SCARLATINA.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	1	2	1	...	1	1	...	1	3	4	7
Exchange .....	...	1	...	2	...	1	3	1	3	5	8
Abercromby	2	...	3	1	...	2	...	3	5	6	11
Everton	2	3	3	6	5	7	2	6	12	22	34
Kirkdale	5	2	...	2	1	...	4	1	10	5	15
West Derby (West)	4	9	3	2	2	2	2	3	11	16	27
Toxteth	2	1	1	1	2	9	7	5	12	16	28
Walton	4	1	1	1	...	2	1	1	6	5	11
West Derby (East) .....	...	4	1	2	2	3	1	1	4	10	14
Wavertree .....	...	...	2	1	...	...	2	1	4	2	6
Sefton Park .....	...	1	...	...	...	1	1	...	1	2	3
(late Toxteth Rural)											
Hospitals (Residences outside the City) .....	...	...	...	...	...	...	...	...	...	...	...
City	20	24	15	18	13	28	23	23	71	93	164

AGES AT DEATH.												
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
5	25	41	26	29	31	2	1	2	2	...	...	164

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

MEASLES.

Measles was very widespread during the year, the cases reported rising to the very large number of 5,107. There were no fewer than 321 deaths directly ascribed to it, the great majority of them being of infants below 2 years of age.

This exceedingly large number of deaths by no means indicates the destruction of life due to measles, since this is a form of disease commonly associated with bronchitis and pneumonia, and it is beyond any question that deaths primarily due to measles are entered in the returns as due to pulmonary disease. In illustration of this, it may be mentioned that during one week a small series of 47 consecutive cases of fatal bronchitis and pneumonia in very young children were personally inquired into. Seven of these cases were continuous with measles.

Measles shows no tendency to decline, and presents a striking contrast in this respect to scarlatina, and a still more marked contrast to typhus fever. (See pages 46—48.) No doubt the preventive and precautionary measures in each of these three diseases vary very considerably in detail, but there is one preventive measure which is essential to them all. This measure has been applied to the fullest available extent in typhus fever, to a very full, though not to the fullest extent, in scarlatina, and not at all in measles. That measure is the isolation of the infectious sick. Hospital provision has been available for the isolation of typhus, and to a very great extent for scarlatina, with results which have fully justified this action. No provision, except for a very limited number of cases in the Workhouse, has been made for measles, and as a natural consequence the deaths from measles show no decline, since in the great number of homes in which it occurs isolation is impossible.

The following table shows the periods of the year and the localities in which deaths from Measles occurred, and also the ages at death.

The number of deaths from Measles during each of the five years 1895-9, has been as follows:—398, 312, 344, 283 and 321.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	2	1	4	2	10	4	20	9	36	16	52
Exchange	1	...	6	6	3	6	3	4	13	16	29
Abercromby	2	...	7	5	2	3	...	1	11	9	20
Everton	1	2	22	6	13	19	7	9	43	36	79
Kirkdale	3	1	9	7	5	3	1	3	18	14	32
West Derby (West) .....	...	2	7	8	10	6	4	2	21	18	39
Toxteth	3	10	5	2	1	4	7	6	16	22	38
Walton .....	...	1	1	1	6	...	1	...	8	2	10
West Derby (East).....	...	...	1	1	2	2	2	5	5	8	13
Wavertree .....	...	...	1	1	3	...	...	...	4	1	5
Sefton Park..... (late Toxteth Rural)	...	...	...	...	1	...	1	1	2	1	3
Hospitals (Residences outside the City) .....	...	...	...	...	1	...	...	...	1	...	1
City	12	17	63	39	57	47	46	40	178	143	321

AGES AT DEATH.												
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
61	140	54	25	20	21	...	...	...	...	...	...	321

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

WHOOPING-COUGH.

The remarks relating to measles are equally applicable to whooping-cough. This disease is one of the most distressing and painful causes of death in very early life. The great bulk of the deaths occur below two years of age, and it is plain from this circumstance that isolation of the infected infant is a matter of some difficulty. During last year 314 deaths were directly attributed to whooping-cough, but the fact that 314 infants were strangled by this disease is by no means a complete representation of the mischief caused by it. Large numbers of infants who were strong enough to resist the attack of the disease itself, succumbed to the diseases of the lungs which followed it.

Before any diminution in this formidable disease can be looked for, some means of isolation will have to be found for the infected children.

A very large number of cases has been carefully gone into with a view to determine whether, if means of isolation were available, any lessening of this disease might be hoped for. The subjoined table, illustrating the infection of 15 children from one source sufficiently answers the question.

WHOOPIING-COUGH CASES.

Sarah P., 2½ yrs.,
18, A. St.,
*Sept. 12.

Irwin B., 7 mms.,
50, M. St.,
*Oct. 2.

Stephen C., 6 yrs.,
64, M. St.,
*Oct. 12.

Katie C., 3 yrs.,
64, M. St.
*Oct. 15.

Marion C., 13 mms.,
64, M. St.,
*Oct. 15.

Eliz. M. 3 yrs.,
Sa. A. St.,
*Nov. 7.

Mary B., 17 mms.,
6a, A. St.,
*Sept. 21.

Wild. H., 4 yrs.,
27, M. St.,
*Nov. 1.

Baby H., 7 mms.,
27, M. St.,
*Nov. 28.

John W., 5 yrs.,
36, M. St.,
*Oct. 19.

Mabel M., 5 yrs.,
67, M. St.,
*Nov. 21.

Norah M., 3 yrs., Frank M., 19 mns.,
67, M. St., 67, M. St.,
*Dec. 7. *Dec. 10.

Mary D., 4 yrs.,
21, M. St.,
*Nov. 29.

Sidney D., 3 yrs.,
21, M. St.,
*Dec. 31.

* Approximate date of commencement of illness.

The following table shows the periods of the year and the localities in which deaths from Whooping-cough occurred, and also the ages at death.

The number of deaths from Whooping-cough during each of the five years 1895-9, has been as follows:—412, 298, 356, 333 and 314.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	1	2	5	5	7	7	12	13	25	27	52
Exchange	1	...	2	3	...	4	3	8	6	15	21
Abercromby	1	...	3	1	2	3	5	3	11	7	18
Everton	2	5	2	1	5	10	8	26	17	42	59
Kirkdale.....	5	6	1	1	2	7	3	3	11	17	28
West Derby (West)	6	3	4	3	5	7	4	4	19	17	36
Toxteth	5	4	7	7	8	14	8	10	28	35	63
Walton	4	3	1	...	...	3	3	1	8	7	15
West Derby (East) .....	...	...	2	1	...	1	1	4	3	6	9
Wavertree .....	...	...	...	...	2	1	1	1	3	2	5
Sefton Park .....	...	1	3	...	1	...	1	1	5	2	7
(late Toxteth Rural).											
Hospitals (Residences outside the City)	...	...	...	...	...	1	...	...	...	1	1
City	25	24	30	22	32	58	49	74	136	178	314

AGES AT DEATH.												
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
124	107	45	21	8	9	...	...	...	...	...	...	314

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

DIPHThERIA.

The following table shows the periods of the year and the localities in which deaths from Diphtheria occurred, and also the ages at death.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	1	2	2	...	1	...	...	...	4	2	6
Exchange	1	1	1	1	...	...	...	...	2	2	4
Abercromby	3	...	1	...	1	...	1	1	6	1	7
Everton	2	4	4	5	3	2	9	6	18	17	35
Kirkdale	4	2	2	1	3	3	2	...	11	6	17
West Derby (West)	3	2	2	...	4	2	1	5	10	9	19
Toxteth	9	10	3	2	8	7	13	11	33	30	63
Walton	8	2	1	1	2	2	...	2	11	7	18
West Derby (East)	1	2	...	...	1	1	1	...	3	3	6
Wavertree .....	...	...	1	...	1	1	...	1	2	2	4
Sefton Park	1	1	3	1	1	...	2	1	7	3	10
(late Toxteth Rural).											
Hospitals (Residences out- side the City).....	...	1	...	...	...	...	2	...	2	1	3
City	33	27	20	11	25	18	31	27	109	83	192

AGES AT DEATH.

Under 1 year.	1--	2--	3--	4--	5--	10--	15--	20 -	30	40--	50 -	60--	All Ages.
18	43	30	25	22	44	8	...	...	1	1	...	...	192

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

CROUP.

The following table shows the periods of the year and the localities in which deaths, attributed by the medical attendant to Croup, occurred, and also the ages at death. Twenty-six of the deaths were attributed to Membranous Croup, and twenty-four to Croup.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland .....	...	...	2	1	...	1	2	2	4	4	8
Exchange	1	1	1	1	2	...	...	...	4	2	6
Abercromby.....	...	...	1	...	...	...	...	...	1	...	1
Everton	1	2	2	1	2	1	...	...	5	4	9
Kirkdale	2	...	...	...	...	...	3	1	5	1	6
West Derby (West) .....	...	2	2	1	1	...	...	...	3	3	6
Toxteth	1	1	2	1	1	1	...	...	4	3	7
Walton .....	...	...	...	...	...	...	...	1	...	1	1
West Derby (East).....	1	1	...	...	...	1	1	...	2	2	4
Wavertree .....	...	...	...	1	...	...	...	...	...	1	1
Sefton Park .....	...	...	1	...	...	...	...	...	1	...	1
(late Toxteth Rural).											
Hospitals (Residences outside the City) .....	...	...	...	...	...	...	...	...	...	...	...
City	6	7	11	6	6	4	6	4	29	21	50

AGES AT DEATH.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	All Ages.
8	13	5	10	9	4	1	...	...	...	...	...	50

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

ZYMOTIC DIARRHŒA.

The mortality from diarrhœa chiefly affected infants, and commenced to increase in the middle of July, and continued until October. 975 deaths were registered from it during this brief period, and to these must be added deaths from the closely-allied or identical disease, English cholera.

The deaths amongst children under three months of age, either wholly or partially fed on artificial foods, are fifteen times as great as they are amongst an equal number of infants fed upon breast milk; e.g., investigation has tended to prove that, out of every 1,000 infants under three months of age, naturally fed upon breast milk alone, 20 die of autumnal choleraic disease; but if the same number of infants, at the same age, are artificially fed, then, instead of 20 dying, as many as 300 will die from this cause.

The method of feeding plays a most important part in the causation of diarrhœa; when artificial feeding becomes necessary, the most scrupulous attention should be paid to feeding bottles, &c. (See page 144.)

During a wet and cool summer and autumn, mortality from zymotic diarrhœa is comparatively small, but a high death-rate from this cause is an invariable accompaniment of a warm, dry season.

The manner in which the rain falls is of importance. A drizzling fall, extending over several days, and equivalent to, say, half an inch, is of far less value than the same amount falling in heavy showers.

DEATHS FROM DIARRHŒA.

DISTRICTS.					QUARTERS.								YEAR.		
					March.		June.		Sept.		Dec.				
					M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland ...	...	...	...	4	...	3	5	86	88	11	11	104	104	208
Exchange	...	...	...	4	2	1	1	27	42	4	4	36	49	85
Abercromby	...	...	...	...	1	1	...	21	15	1	1	23	17	40
Everton ...	...	...	...	2	2	3	8	113	95	6	8	124	113	237
Kirkdale ...	...	...	...	1	2	2	1	62	54	5	7	70	64	134
West Derby (West)	...	...	...	1	1	2	3	58	42	...	3	61	49	110
Toxteth ...	...	...	...	3	1	...	...	84	81	...	6	87	88	175
Walton ...	...	...	...	...	1	...	...	35	47	1	1	36	49	85
West Derby (East)	...	...	...	...	...	1	...	29	11	2	1	32	12	44
Wavertree	...	...	...	1	1	...	1	14	9	2	...	17	11	28
Sefton Park (late Toxteth Rural)	...	...	...	...	...	1	...	8	1	...	...	9	1	10
Hospitals (Residences outside the City)	...	...	...	1	...	1	...	...	...	...	...	2	...	2
City	...	...	...	17	11	15	19	537	485	32	42	601	557	1,158
AGES AT DEATH.															
Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50 -	60 & up- wards.	All Ages.		
811	235	30	11	4	3	1	...	3	3	8	15	34	1,158		

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

List of Streets in the City wherein Three or more Deaths from
Diarrhœa occurred during the year 1899.

STREETS.	No. of Deaths.	STREETS.	No. of Deaths.
Acton	3	Clement	6
Aden	3	Copperfield	3
Alt	3	Cowl	3
Arkwright	8	Cranmer	4
Arlington	8	Dane	3
Aspinall	3	Delamore	4
Athol.....	5	Devonshire Place	4
Beaufort	7	Edge Lane	3
Bevington	3	Eldon	3
Blenheim	5	Eldon Place.....	3
Bond.....	3	Emery	3
Bostock.....	3	Field	3
Boundary	6	Fountains Road	4
Brisbane	4	Friar	3
Buckingham	5	Gerard	3
Burlington	12	Gladstone Road	3
Cambria	3	Gordon	7
Canterbury	3	Grove Place.....	3
Carisbrooke Road	3	Gt. Howard.....	4
China	4	Haigh	3
Christopher	4	Hall Lane	3
Clarence Grove	3	Hedley	3
Claudia	3	Herbert.....	4
Claypole	3	Hopwood	4

In arranging the foregoing list of streets, all deaths occurring in hospitals have been transferred to the streets from whence the patients were removed.

List of Streets in the City wherein Three or more Deaths from
Diarrhœa occurred during the year 1899.—*Continued.*

STREETS.	No. of Deaths.	STREETS.	No. of Deaths.
Hornby.....	5	Prince Edwin	7
Houlgrave	3	Pugin	4
Iliad	5	Raymond.....	3
Index	4	Reading	4
Kew	7	Robsart	3
Lace	3	Rokeby.....	3
Lancaster.....	4	Roscommon.....	3
Latimer	5	Rose Place	5
Lind	4	Rose Vale.....	3
Lloyd	3	Scorton.....	3
Louis	3	Slade	7
Luke.....	3	Spring	3
Mann	5	St. Anne	3
Mile End	3	Tagus	3
Mill	6	Tatlock.....	5
Mozart	3	Teulon	6
Naylor	5	Torbock	4
Netherfield Road, N.....	3	Upper Stanhope.....	3
New Road	4	Upper Warwick	3
Ono	3	Vauxhall Road	3
Ouse	4	Victoria Square	4
Page	3	Wellington Road, Toxteth	3
Parkhill Road.....	3	Whitley	3
Penrhyn	6	Wolfe	4
Penton	3	Wrayburn	5
Portland	6		

In arranging the foregoing list of streets, all deaths occurring in hospitals have been transferred to the streets from whence the patients were removed.

OTHER ZYMOTICS.

The following table indicates the localities in which deaths from other forms of Zymotic disease occurred during the year:—

DISTRICTS.	Influenza.		Erysipelas.		Syphilis.		Rheumatic Fever.		Puerperal Fever.		Other Zymotics.		YEAR.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	8	10	...	1	4	...	3	...	...	...	2	5	33
Exchange	3	9	4	...	4	4	2	1	...	2	1	4	34
Abercromby	10	14	1	...	1	1	3	1	...	1	...	1	33
Everton	30	13	3	1	8	3	6	3	...	1	9	2	79
Kirkdale	4	1	1	...	...	1	4	3	...	...	7	2	23
West Derby (West) ..	12	18	1	3	4	2	2	6	...	6	6	5	65
Toxteth	17	22	3	2	6	3	3	3	...	5	6	1	71
Walton	6	3	...	...	3	...	1	1	...	4	4	3	25
West Derby (East)...	1	4	1	...	3	...	1	...	...	2	2	...	14
Wavertree	3	2	...	...	1	...	...	1	...	...	...	...	7
Sefton Park..... (late Toxteth Rural)	6	5	...	...	...	1	...	...	...	1	1	1	15
Hospitals(Residences outside the City) ..	2	...	...	...	...	2	...	...	...	...	13	2	19
City	102	101	14	7	34	17	25	19	...	22	51	26	418

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

ANNUAL AVERAGE NUMBER OF DEATHS FROM SIX OF THE PRINCIPAL ZYMOTIC DISEASES
DURING EACH OF THE LAST THREE DECENNIAL PERIODS.

Years.	Small Pox.	Typhus.	Scarlet Fever.	Measles.	Whooping Cough.	Diarrhœa.
1866 to 1875	237·4	652·8	789·4	425·7	496·8	995·3
1876 to 1885	90·8	238·0	421·2	517·8	472·3	658·4
1886 to 1895	8·8	37·1	257·5	399·5	322·4	600·6
1896 to 1899	·7	23·0	184·0	315·0	325·2	1036·8

ANNUAL AVERAGE NUMBER OF DEATHS FROM SIX OF THE PRINCIPAL ZYMOTIC DISEASES
DURING EACH OF THE LAST THREE DECENNIAL PERIODS, DISTINGUISHING THOSE
OF PERSONS ABOVE AND BELOW FIVE YEARS OF AGE.

YEARS.	SMALLPOX.		TYPHUS.		SCARLET FEVER.		MEASLES.		WHOOPING COUGH.		DIARRHŒA.	
	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.
1866 to 1875 }	141·7	95·7	*...	*...	187·7	601·7	14·4	411·3	9·9	486·9	105·7	889·6
1876 to 1885 }	62·5	28·3	*...	*...	137·0	284·2	35·4	482·4	18·6	453·7	61·9	596·5
1886 to 1895 }	6·2	2·6	†33·2	†·7	87·6	169·9	28·3	371·2	15·1	307·3	60·2	540·4
1896 to 1899 }	·7	...	22·0	1·0	49·0	135·0	18·5	296·5	10·2	315·0	70·5	966·3

* During these years the ages at death from Typhus were not differentiated.

† During the eight years, 1888-1895.

The following table shows the annual average death-rate, per 100,000 of the population, during each of the last three decennial periods, and during the four years 1896-9, from the undermentioned Zymotic Diseases :—

DISEASES.	1866 to 1875.	1876 to 1885.	1886 to 1895.	1896 to 1899.
Typhus	132.1	43.0	7.1	3.5
Small Pox	48.0	16.3	1.5	0.1
Scarlet Fever	159.9	76.2	49.6	28.0
Measles	86.1	93.6	77.0	48.0
Whooping Cough	100.5	85.4	62.1	49.6

TUBERCULAR DISEASES.

These diseases are associated with insanitary surroundings, and with conditions of life which tend to lower the general health. Improved sanitation is accompanied by a diminished mortality from these forms of disease, as the accompanying table, which relates to the last three decades, indicates :—

	1866 to 1875.	1876 to 1885.	1886 to 1895.	1896 to 1899.
Annual Average Death-rate per 100,000 of the population, at all ages, from all forms of Tuberculosis	430.8	349.8	309.8	257.6
Annual Average Death-rate per 100,000 of the population above 5 years of age from Phthisis ...	362.8	278.6	244.4	210.4
Annual Average Death-rate per 100,000 of the population below 5 years of age from : Tabes Mesenterica) Hydrocephalus ..) Scrofula)	637.1	597.3	539.1	375.7

The Group of Tubercular Diseases includes Phthisis, Scrofula, Tabes Mesenterica, and Hydrocephalus. They occasioned 1,754 deaths in the City of Liverpool during the year 1899.

DEATHS FROM PHTHISIS.

DISTRICTS.				QUARTERS.								YEAR.		
				March.		June.		Sept.		Dec.				
				M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland...	...	...	...	28	17	24	13	16	18	24	22	92	70	162
Exchange	...	...	...	16	12	30	16	21	22	30	11	97	61	158
Abercromby	...	...	...	19	14	25	16	9	10	17	6	70	46	116
Everton	...	...	...	42	25	30	20	30	22	40	25	142	90	234
Kirkdale	...	...	...	15	11	10	3	14	14	12	12	51	40	91
West Derby (West)	...	...	...	23	11	31	11	17	14	18	17	89	52	142
Toxteth	...	...	...	33	29	25	23	25	10	19	19	102	80	183
Walton	...	...	...	12	7	7	5	4	6	7	4	30	22	52
West Derby (East)	...	...	...	9	5	5	8	3	4	6	6	23	23	46
Wavertree	...	...	...	3	3	6	4	3	1	4	2	16	10	26
Sefton Park (late Toxteth Rural)	...	...	...	7	1	1	4	6	1	4	3	18	9	27
Hospitals (Residences outside the City)	...	...	...	14	5	14	7	9	8	12	7	49	27	76
City	...	...	...	221	140	208	130	157	130	193	134	779	530	1,313

AGES AT DEATH.											
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & up- wards.	All Ages.
7	7	11	20	31	73	296	356	303	144	65	1,313

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

DEATHS FROM OTHER TUBERCULAR DISEASES.

DISTRICTS.					Scrofula.		Tubercles Mesenterica.		Hydrocephalus.		YEAR.		
					M.	F.	M.	F.	M.	F.	M.	F.	Total.
Scotland	...	...	...	...	5	8	6	4	4	6	15	18	33
Exchange	...	...	...	...	5	3	8	1	9	5	22	9	31
Abercromby...	...	...	...	...	4	5	10	4	2	5	16	14	30
Everton	...	...	...	...	20	15	24	6	9	5	53	26	79
Kirkdale	...	...	...	...	14	6	11	5	13	9	38	20	58
West Derby (West)	...	...	...	...	11	12	17	7	9	6	37	25	62
Toxteth	...	...	...	...	17	12	10	6	4	9	31	27	58
Walton	...	...	...	...	5	9	3	3	4	4	12	16	28
West Derby (East)	...	...	...	...	5	4	1	1	5	6	11	11	22
Wavertree	...	...	...	...	5	4	...	1	3	...	8	5	13
Sefton Park ... (late Toxteth Rural)	...	...	...	...	2	2	...	2	6	3	8	7	15
Hospitals (Residences outside the City)	...	...	...	...	7	4	1	...	...	...	8	4	12
City	...	...	...	...	100	84	91	40	68	58	259	182	441
AGES AT DEATH.													
Under 1 year.	1—	2—	5—	10—	15—	20—	30—	40—	50—	60 & up- wards.	All Ages.		
133	86	74	48	24	11	22	22	9	8	4	441		

Deaths in Public Institutions are transferred to the Districts from whence the patients came.

The following table indicates the number of deaths from Cancer during the last five years, and the part of the body affected by the disease:—

DISEASE.	1895.			1896.			1897.			1898.			1899.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Cancer of Stomach and Bowels..	85	73	158	81	56	137	86	126	212	92	89	181	103	86	189
„ Liver	36	24	60	33	41	74	24	31	55	23	42	65	29	46	75
„ Urinary and Generative Organs	12	112	124	7	103	110	10	94	104	12	73	85	21	89	110
„ Breast.....	...	46	46	2	54	56	...	45	45	...	47	47	1	49	50
„ Head and Face	19	4	23	15	3	18	12	6	18	11	7	18	19	8	27
„ Tongue, Neck, and Throat.....	35	9	44	47	11	58	39	9	48	47	10	57	31	9	40
„ Other parts of the Body	13	9	22	6	11	17	8	5	13	8	5	13	11	5	16
„ Parts not specified ...	15	10	25	12	13	25	11	8	19	17	12	29	7	16	23
Total	215	287	502	203	292	495	190	324	514	210	285	495	222	308	530

ALCOHOLISM.

A further increase in the number of deaths certified by coroners' juries to be the result of excessive drinking is a matter for profound regret and concern. The misery and degradation and destruction of human life consequent upon excessive and uncontrolled indulgence in alcohol are the saddest features which sanitation has to contend against, and the most hopeless, since notwithstanding that the source of this mischief is plain, the Sanitary Authority is powerless to control it.

Inquests were held during the year on the bodies of 216 persons (101 of whom had died in Workhouses and Hospitals), viz., 50 men and 30 women, whose deaths were caused by excessive drinking; 79 men and 44 women whose deaths were accelerated by excessive drinking; 6 men and 7 women who were fatally injured by accident whilst under the influence of drink.

In six inquests in which death was found to be the result of violence, the person committing the deed was drunk at the time, and in four both the person who inflicted the injuries and the injured person were drunk at the time.

In addition to the foregoing, "Alcoholism" is given as the cause of death of 13 men and 14 women.

There are many cases of fatal injury in which the verdict of "accidental death" omits any reference to the fact that the injured person was intoxicated at the time.

Deaths from excessive drinking are localised, and it is in the district where they are most numerous that the general death-rate is highest, and the proportion of deaths in workhouses is greatest; what these facts imply is obvious enough. Two districts of equal population may be contrasted thus:—

	Population.	General Death-rate per 1,000.	Proportion of Deaths in Workhouses and Hospitals.	Proportion of Deaths due to Excessive Drinking.
Exchange	42,137	38·7	39·4 per cent.	3·4 per cent.
West Derby (East)	42,141	16·5	15·5 „	0·5 „

The mischief is far more insidious and far more serious and widespread than the inquests indicate. Reference has been made to this in previous reports.

Dr. Sullivan publishes some interesting details of his observations on the influence of maternal inebriety alone upon infant mortality, that is apart from incidental neglect and cruelty to the infants.

His enquiries were made in respect to a series of female drunkards in the Liverpool prison, and his aim was to discover the effects of alcoholism alone. He found that out of 600 children of inebriate mothers, 335, including stillborn, died below two years of age, only 265 living over that age. He noted also the progressive effects of alcoholism on the children in the condition of the first, second, third, fourth, &c., born; for instance, in one family the three first-born children were healthy, the fourth was of defective intelligence, the fifth an epileptic idiot, the sixth was dead-born, and the seventh pregnancy ended in an abortion.

Extending his enquiries, he ascertained that in a series of cases of children born of drunken mothers, 55·2 per cent of the children died under two years of age, as against 23·9 per cent. dying amongst children born of sober mothers in similar circumstances in life. He also notes a greater likelihood of survival of the infants when the mother has been imprisoned during part of the pregnancy, and has consequently had the advantage of an enforced temperance. These facts are worthy of notice, because they do not come under general observation.

The following table shows the death-rate per 1,000 of the population, and the number of deaths from Fever and Diarrhœa during the last sixteen years:—

Year.	Death Rate per 1,000 of Population from all causes.	Deaths from Diarrhœa.	Deaths from Fever.		
			Typhus.	Typhoid.	Continued.
1884	*26·6	841	77	112	16
1885	*25·6	422	71	95	16
1886	*26·1	781	47	140	11
1887	*26·4	619	52	130	12
1888	*23·1	431	32	125	4
1889	*24·9	575	45	167	...
1890	*27·5	468	23	99	1
1891	26·9	330	37	92	2
1892	24·7	415	18	111	2
1893	27·3	866	44	221	5
1894	23·8	503	50	248	7
†1895	25·4	1,108	24	197	4
1896	21·9	851	36	166	2
1897	23·4	1,182	23	145	5
1898	22·2	956	19	148	5
1899	24·3	1,158	13	182	4

* Calculated on corrected population as per Census Returns of 1891.

† City Boundaries extended.

Mr. Plummer, M.A., F.R.A.S., Astronomer to the Mersey Docks and Harbour Board, has kindly supplied the following tables relating to Meteorological observations made by him at the Liverpool Observatory, Bidston :—

LIVERPOOL OBSERVATORY, BIDSTON, BIRKENHEAD.

Latitude $53^{\circ} 24' 5''$ N. Longitude $3^{\circ} 4' 20''$ W.
Height above the Mean Level of the Sea 202 feet.

Year and Month, 1899.	Barometer. Mean.	Temperature. Mean.	Rainfall. Amount.	No. of days on which 0·01 in. or more rain fell.	Mean Monthly Humidity. Complete Satur- ation equal 100.
	Inches.	Degrees.	Inches.		
January	29·742	41·0	2·926	20	88
February	29·821	41·1	1·459	14	81
March	30·047	42·9	1·110	14	88
April	29·781	46·4	2·258	20	70
May	30·006	50·2	2·206	16	70
June	30·068	59·5	2·993	9	77
July	30·068	61·2	2·225	17	81
August	30·080	63·7	2·200	13	73
September	29·808	55·7	3·493	24	80
October	30·019	49·5	2·917	12	80
November	30·085	48·8	1·086	12	80
December	29·854	36·7	2·934	15	87

DIFFERENCE FROM THE AVERAGE QUANTITIES OBSERVED DURING THE LAST 30 YEARS.

1899.	BAROMETER.		TEMPERATURE.		RAINFALL.	
	Above Average.	Below Average.	Above Average.	Below Average.	Above Average.	Below Average.
	Inches.	Inches.	Degrees.	Degrees.	Inches.	Inches.
January .....	...	0·182	2·0	...	0·789	...
February .....	...	0·134	0·6	...	...	0·163
March	0·139	...	0·9	...	...	0·612
April .....	...	0·123	...	0·8	0·673	...
May	0·039	...	...	0·9	0·368	...
June	0·080	...	1·6	...	0·999	...
July	0·149	...	0·7	...	...	0·755
August	0·168	...	3·6	...	...	0·665
September .....	...	0·123	...	0·7	0·346	...
October	0·160	...	0·5	...	...	0·733
November	0·207	...	5·3	...	...	1·642
December .....	...	0·020	...	3·0	0·287	...

OBSERVATIONS OF VELOCITY OF WIND.

1899.	Average Hourly Velocity for Month.	Maximum Hourly Velocity.	Date of Maximum Velocity.	Minimum Hourly Velocity.	Date of Minimum Velocity.
	Miles per Hour.	Miles.		Miles.	
January	24·3	83	Jan. 12	1	Jan. 6, 7, 13, 24, 26, 28, 31.
February	15·6	47	Feb. 9	0	Feb. 24.
March	16·3	53	March 28	1	Mar. 5, 12, 15, 16, 17, 30.
April	17·6	50	April 5, 7, 8	1	April 2, 22, 25.
May	12·1	39	May 18	1	May 11, 12, 27, 30.
June	10·9	32	June 28	0	June 12.
July	13·9	44	July 2	0	July 5, 31.
August	12·8	38	August 16	0	August 2, 23.
September	21·6	54	Sept. 18, 22	1	Sept. 12, 27.
October	15·5	44	Oct. 13	1	Oct. 5, 6, 7, 22, 24.
November	19·2	62	Nov. 10	1	Nov. 20.
December	15·5	44	Dec. 30	1	Dec. 7, 11, 14, 15, 17.

SANITARY ADMINISTRATION.

SANITARY ADMINISTRATION.

For the purpose of carrying out the requirements of the various Sanitary Acts of Parliament and the Orders, Bye-laws, and Regulations made thereunder, the following staff of the Medical Officer of Health's Department has been employed during the year:—

*Chief Sanitary Inspector	...	...	...	...	1
*Deputy Chief Sanitary Inspector	...	...	...	...	1
*Prosecuting Sanitary Inspectors	...	...	...	...	7
*Inspectors for General Sanitary Purposes	...	...	...	...	28
*Female Inspectors for General Sanitary Purposes	...	...	...	...	8
§Inspectors of Meat and Animals	...	...	...	...	5
„ under the Diseases of Animals Act	...	...	...	...	2
** „ of Fish and Fruit	...	...	...	...	4
*** „ under the Sale of Food and Drugs Act...	...	...	...	...	3
* „ „ Workshop and Shop Hours Act.	...	...	...	...	3
† „ , Smoke	...	...	...	...	3
† „ , Ambulance	...	...	...	...	4
„ , Disinfecting	...	...	...	...	8
Superintendents of Disinfecting Apparatus	...	...	...	...	2
*Chief Inspector of Common Lodging and Sub-let Houses	...	...	...	...	1
***Inspectors of Common Lodging and Sub-let Houses	...	...	...	...	12
*Inspector of Canal Boats	...	...	...	...	1
* „ Bakehouses	...	...	...	...	1
*Inspectors of Cowsheds and Milkshops	...	...	...	...	2
Notice Servers	...	...	...	...	3
Permanent Clerical Staff	...	...	...	...	21
Temporary Assistant	...	...	...	...	1

In every case Officers are selected for these positions, whose previous training and occupation have been such as to fit them for the special duties they are called upon to discharge. Those marked * are required to hold the Certificate of the Sanitary Institute of Great Britain or a Certificate equivalent thereto; those marked † have Marine Engineers' First Class Certificates, and the ‡ Superintendent Ambulance Inspector holds Sanitary Certificate, and also the Certificate of St. John's Ambulance Association. ** Fishmongers by trade. § Butchers by trade; candidates are submitted to practical examination upon the lines which have been indicated in the Report of the Royal Commission upon Tuberculosis. ***Several hold the Certificate of the Sanitary Institute, or an equivalent thereto.

The number of occasions upon which the advice and assistance of the Health Department have been sought has slightly diminished during the year. The applications made by residents in the city in 1896 were 7,993, in 1897 they were 8,852, in 1898 they were 9,362, and in 1899 they were 9,215. As in former years, complaint was made to the Health Department only after repeated requests addressed to the persons causing or allowing the nuisance, or to agents or owners of property, had been ignored. Generally speaking, these complaints arise in connection with jerry-built property. A great deal of the time of the Inspectors was taken up by these special examinations.

Requests to examine important public buildings and offices, as well as highly-rented dwelling-houses, have been very numerous, and the application of the smoke test has in many cases brought to light defects in the drainage system. Requests for the application of the smoke test are becoming more numerous.

A very large number of sanitary notices are served upon owners in respect to what is well known as "insanitary property." (See page 184.)

Owners would do well to demolish property such as this, and erect suitable habitations upon the site. By thus co-operating with the Insanitary Property Committee, they would rid themselves of the annoyance of receiving notices, and remove centres of disease and degradation from the city.

The class of property in question is well illustrated by the photographs on page 213.

The following table shews the number of nuisances found by routine inspection or on complaints and the character of the proceedings taken to abate the nuisances, and the results:—

			<u>1898.</u>	<u>1899.</u>
Number of Complaints made by Inhabitants	...	...	9,362	9,215
„ Nuisances discovered on above complaints...			16,647	19,640
„ „ „ house to house				
	inspection	...	70,227	72,182
„ Notices issued ...	{ Owners ... 42,978 }		45,621	44,181
	{ Occupiers ... 1,203 }			
„ Notes to complainants	...	...	4,030	3,935
„ „ sent to comply with notices	...	...	6,099	7,089
„ Nuisances re-inspected	...	...	122,533	128,087
„ „ abated on re-inspection	...	...	67,709	68,158
„ Drains repaired	...	...	30,230	30,872
„ Ashpits „	...	...	2,002	1,919
„ Closets „	...	...	29,454	27,619
„ Water Closet Conversions	...	...	17	16
„ Spouts fixed and repaired	...	...	781	890
„ Places from which animals have been removed			300	195
„ Premises from which offensive matter has				
been removed	...	...	144	113
Nuisances caused by Stagnant Water	...	...	507	454
„ „ Dilapidated Houses	...	...	225	170
Number of Premises found without water and supplied			4,009	5,888
„ Chimneys repaired to abate smoke nuisances			39	20
„ Cellar Rails repaired...	...	...	1	2
„ Premises under observation...	...	...	1,691	1,325
„ Informations laid	...	...	1,054	1,232
„ Fined	...	...	245	279
„ of Magistrates' Orders	...	...	423	538
„ Acquitted or Withdrawn	...	...	386	415
Amount of Fines and Costs	..	£249 11 10 |	£315	3 0

REFERENCES TO OTHER DEPARTMENTS.

A considerable number of conditions ascertained by the Sanitary Staff to be prejudicial to health were referred to other departments.

			<u>1898.</u>	<u>1899.</u>
Referred to City Engineer ...	...	...	4,036	6,290
„ Building Surveyor ...	...	...	1,460	1,405
„ Water Engineer ...	...	...	6,781	7,362
„ School Board ...	...	...	10,902	18,202

The references to the Water Engineer comprise, mainly, defective fittings, resulting in waste of water; also cases in which the supply was insufficient, owing to various accidental causes.

The references to the School Board chiefly relate to children from infected houses who are attending school, or who are suffering from ring-worm, ophthalmia, &c.

REFERENCES FROM OTHER DEPARTMENTS.

			<u>1898.</u>	<u>1899.</u>
Received from the City Engineer ...	...	...	13,199	12,720
„ Water Engineer ...	...	...	1,683	3,876
„ Lodging-house Inspectors			7,979	6,597
„ School Board ...	...	...	—	6,879

The references from other Departments mainly comprise insanitary conditions discovered by officers belonging to those departments, but with which it is not within their province to deal. The City Engineer's Department continues to report defects in private drains brought to light by flushing.

HOUSE TO HOUSE VISITATION.

The following table indicates the results of the systematic house-to-house visitation by the District Male Staff:—

		<u>1898.</u>	<u>1899.</u>
Number of Inspections of Street Houses	... ..	15,586	16,149
„ Street Houses found Clean	... ..	12,594	13,770
„ „ „ Dirty	... ..	2,992	2,379
„ Apartments in Street Houses Examined		72,289	79,260
„ *Inspections of Court Houses	... ..	2,489	1,356
„ Court Houses found Clean	... ..	1,572	942
„ „ „ Dirty	... ..	917	414
„ Apartments in Court Houses Examined		6,408	4,028
Total Number of Houses Examined and Re-inspected		23,550	20,278

DIRTY HOUSES.

		<u>1898.</u>	<u>1899.</u>
Number of Dirty Street Houses Inspected	... ..	2,992	2,379
„ „ Court „	... ..	917	414
„ „ Cellars Inspected	... ..	1,078	887
„ „ Houses and Cellars Re-inspected...		5,231	3,678
„ Notices to Owners to Cleanse Dirty Houses	... ..	4,023	3,406
„ Notices to Occupiers to Whitewash Dirty Houses	... ..	577	418
„ Notices to Owners to Whitewash Exteriors of Courts	... ..	1,396	1,226
„ Informations	... ..	43	48
„ Fined	... ..	20	31
„ Acquitted or Withdrawn	... ..	23	11

Amount of Fines and Costs £11 8s. 6d. | £16 17s. 0d.

* A large number of visits was made to court houses for special purposes (see page 100), and these to a considerable extent lessened the necessity for the routine visits.

COURT AND ALLEY EXAMINATIONS.

								<u>1898.</u>	<u>1899.</u>
Number of Visits to Courts and Alleys ...	...	...	...	...	...	...	...	74,241	67,765
„ Closets found Dirty, but Cleansed by Officer's Instruction								68,408	74,231
„ Informations ...	...	...	...	...	...	...	...	48	20
„ Fined ...	...	...	...	...	...	...	...	41	19
<hr/>									
Amount of Fines and Costs	...	...	...	...	...	...	...	£4 2 0	£2 3 0

Special and systematic visits to courts and alleys are made with the object of ensuring the cleanliness of the domestic offices and the surface of the courts. The aim is to keep the courts and alleys uniformly clean throughout the week, and with this view the district inspectors are instructed that every tenant in each court is in turn to be held responsible for the cleanliness of the court for a period of one week; the inspector records in his visiting book whose turn it is, and duly informs that tenant. Failing compliance with his requirements, an information is laid under the following bye-law, made under the Liverpool Sanitary Act, 1846:—

First. From and after the day on which these bye-laws shall come into operation, whenever tenants or occupiers of several houses in courts, alleys, streets, and other places within the Borough, have the right to use in common any middenstead or privy, the several persons having such right shall be, and they are hereby required to keep the internal walls, floors, seats, and fittings of such middenstead or privy thoroughly clean, so that the same is not a nuisance or annoyance to any inhabitant of the said Borough.

Second. That if any privy or middenstead so used in common, or the walls, floors, seats, or fittings thereof, or any of them, shall be in such a state or condition as to be a nuisance or annoyance to any inhabitant of the Borough, for want of proper cleansing thereof, as aforesaid, then the persons having the use thereof in common as aforesaid, shall severally be liable to a penalty not exceeding 40s., and a further penalty not exceeding 5s. for every day during which the same shall remain in such state or condition.

But under the Public Health Acts Amendment Act, 1890, somewhat similar proceedings may be taken.

Section 21 of this Act runs as follows :—

With respect to any sanitary convenience used in common by the occupiers of two or more separate dwelling-houses, or by other persons, the following provisions shall have effect :—

(1) If any person injures or improperly fouls any such sanitary convenience, or anything used in connection therewith, he shall for every such offence be liable to a penalty not exceeding ten shillings :

(2) If any sanitary convenience or the approaches thereto, or the walls, floors, seats, or fittings thereof is, or are, in the opinion of the urban authority or of the inspector of nuisances or medical officer of health of such authority in such a state or condition as to be a nuisance or annoyance to any inhabitant of the district for want of the proper cleansing thereof, such of the persons having the use thereof in common as aforesaid as may be in default, or in the absence of proof satisfactory to the court as to which of the persons having the use thereof in common is in default, each of those persons shall be liable to a penalty not exceeding ten shillings, and to a daily penalty not exceeding five shillings.

The stipendiary magistrate has rendered great help to the department by imposing a small fine in those cases in which a prosecution became necessary. Improvement results up to a point, but the constant attention of the officer is very necessary, since the filthy habits of the people soon lead to a recurrence of the dirty conditions if the visits are lessened.

The courts and alleys continue to decrease in number, owing to the demolition of low-class property for the extension of business premises, or to the removal of insanitary property by the Insanitary Property and Artizans' Dwellings Committee. The number of courts and alleys scheduled for inspection in 1890 was 2,165, in 1895 it had fallen to 1,660, in 1897 it had further fallen to 1,593, in 1898 the number was 1,466, in 1899 it was 1,432, showing a diminution in nine years of 733 courts.

During the year all courts and alleys having covered entrances were specially washed and hosed down by the scavengers. Under the Liverpool Sanitary Act the exteriors of all courts and alleys require to be limewashed every spring, or as often as may be necessary.

COMMON LODGING-HOUSES.

The Common Lodging-Houses Act provides that any person opening any premises as a Common Lodging-House, or receiving lodgers therein, without making application to the Medical Officer of Health to have such premises registered, is liable to a penalty of 40s. for every such offence.

When premises have been approved and registered in accordance with the requirements of the Common Lodging-Houses Act, the following Rules and Instructions, together with suitable and permanent cards indicating the various requirements, are handed to the Keeper, to place in a prominent position in each room.

In addition to the requirements mentioned in the following instructions, the cleanliness and suitability of the beds and bedding engage the attention of the Inspector :—

RULES AND INSTRUCTIONS.

1.—No greater number than Lodgers are to be received or accommodated in this house at any one time.

2.—The windows of every sleeping-room in this house are to be opened, and kept open to their full width, from nine to ten o'clock every morning, and from two to three o'clock every afternoon (weather permitting), unless in case of sickness in any room requiring the windows to be closed.

3.—The floors of every room in this house shall be well swept every morning before the hour of ten, and shall be well washed during the morning of every Friday.

4.—This house shall be thoroughly cleansed, and the walls and ceiling of every room in this house shall be well and sufficiently lime-washed, and the blankets, rugs, and bed-clothes, and covers used in this house, shall be thoroughly cleansed and scoured in the first week of each of the months of April, August, and December.

5.—Upon any person in this house, whether a Lodger or one of the family, being affected with fever or any contagious or infectious disorder, the Keeper shall forthwith give notice thereof to the Medical Officer of Health, at his Office, Municipal Offices, Dale Street, and the Medical Officer will visit the house, and take such proceedings as he shall think proper in compliance with the Act.

6.—If any person in this house shall be affected with fever or any infectious or contagious disorder, the blankets and bed-clothes used by such person shall be thoroughly cleansed and scoured, and the bedding fumigated, immediately after the removal of such person, and where the bedding used consists of shavings or straw, the same shall be burned immediately after such removal.

7.—The Keeper of this house shall provide sufficient accommodation for washing, together with a sufficient supply of water for the use of the Lodgers herein.

8.—The Keeper of this house shall reduce the number of Lodgers, or shall cease to receive and accommodate Lodgers altogether, immediately upon receiving notice to that effect from the Medical Officer of Health.

9.—This ticket shall be placed and kept in such situation in this house as the Medical Officer of Health shall from time to time direct, and shall be produced and delivered to such Officer on demand.

N.B.—The keeper of any lodging-house defacing or removing this ticket or disobeying the above Rules and Instructions, will be liable to the several penalties in that behalf provided by the Bye-laws for regulating Lodging-houses, a copy whereof may be obtained on application at the Office of the Town Clerk, at the Municipal Offices, Dale Street.

By order of the Health Committee.

At the end of 1898 there were on the register a total of 654 lodging-houses, and at the end of 1899 the total number was 695, which furnished accommodation for 14,320 lodgers, besides 2,247 members of the keepers' families.

The difference in the number of lodging-houses was occasioned by the removal of 172 old licenses and the addition of 213 new ones.

Five applications were refused by the Health Committee, four on the ground that the houses were not suitable for the purpose, and the other on account of the bad character of the applicant.

In some of the better-class houses for men, separate cubicles are provided for each lodger, the price paid for them varying from 6d. to 1s. 6d. per night. These cubicles are much more appreciated than the ordinary accommodation provided.

The number of what are known as "model" lodging-houses, for men only, upon the register is 150, and these are registered to accommodate 6,674 lodgers, as well as 300 members of the keepers' families.

The term "model" appears now to be used as a trade designation to indicate premises used for the accommodation of one sex only.

The increase in the number of registered lodging-houses during the year has been mainly due to the demand for this class of accommodation for navvies.

There are also 22 registered model lodging-houses for the accommodation of women only. These have room for 591 lodgers, in addition to 24 members of the keepers' families.

A large lodging-house for single men, on the model of Lord Rowton's Homes in London, has been opened in Bevington Bush, and is called the "Bevington Bush Hotel." Accommodation is provided for 450 lodgers, the charge per night being 6d. A separate cubicle is given to each lodger, and every detail likely to add to the comfort of the labouring men has been carefully thought out. The establishment is one which will supply a want in the neighbourhood.

The visits to lodging-houses are both by day and by night. The night visits are almost restricted to the lower districts and commoner class of house. The lodging and emigration houses of the better class, especially those provided only with single beds for each person, and with no more beds than are equivalent to the number of lodgers allowed, are only occasionally visited at night, unless special circumstances necessitate a closer supervision.

Houses which are not licensed either as lodging or sub-let houses are frequently visited by day when such a course is deemed expedient, in order to ascertain whether any grounds exist for putting these houses on the register.

There were 607 visits paid during the year to such houses, and in three of the cases, where suspicion was confirmed, night visits were also paid, and the tenants summoned and fined by the magistrate for taking lodgers without having the premises registered.

Persons harbouring lodgers in unlicensed premises receive a notice to apply to have the rooms measured and licensed. There were 133 such notices issued during the year, but in only 3 cases was it necessary to institute prosecutions.

The number of day visits paid during the year was 28,279, and the night visits 1,944.

One hundred and fifty informations were laid against keepers of common lodging-houses during the year for the following offences:—

Not sweeping floors	...	...	...	...	49
Not washing floors	...	...	...	...	29
Overcrowding	...	...	...	...	41
Receiving lodgers in unlicensed rooms	...	...	...	...	10
Not applying to register	...	..	...	...	3
Mixing sexes	...	...	...	...	10
Not limewashing	...	...	...	...	8
Total					150

Convictions followed in 143 cases, the total amount of fines amounting to £54 12s. 6d., and ranging from 1s. and 1s. costs to 40s. and costs.

Seven cases were withdrawn.

The number of lodging-houses found dirty was 109; in each case notices were served to limewash and cleanse.

The Bye-law requires that every case of infectious sickness in a lodging-house should be at once reported to the Medical Officer of Health. Twenty-six cases of infectious sickness occurred in lodging-houses; 24 of the patients were at once sent to hospital, the remaining two were members of the keeper's family, and were not removed. In all cases the bedding was removed to the disinfecting apparatus, and the rooms purified and cleansed. There were 80 deaths from non-infectious diseases in lodging-houses, 45 of the deceased persons belonging to the keepers' families, and 35 were lodgers.

SEAMEN'S LICENSED LODGING-HOUSES.

The Corporation have made bye-laws, with the sanction of the President of the Board of Trade, for the licensing of Seamen's Lodging-houses, under the Merchant Shipping (Fishing Boats) Act, 1883, Section 48.

These Bye-laws are as follows:—

1.—That from and after the 1st day of October, 1887, the Bye-laws as to Seamen's Licensed Lodging-houses, made by the Council of the City of Liverpool on the 6th day of December, 1882, shall be repealed.

2.—In these bye-laws the expression “Registered Common Lodging-House” means a common lodging-house registered as such pursuant to the enactments and bye-laws or regulations in force in that behalf in the City of Liverpool; and the expression “Registered Lodging-House” means a lodging-house registered as let in lodgings or occupied by members of more than one family, pursuant to the enactments and bye-laws or regulations in force in that behalf in the said City.

3.—On the written application of the keeper of any registered common lodging-house or registered lodging made in such form and stating such particulars as the Council require, the Council will (subject as hereinafter mentioned), if they see fit, grant to such keeper a license authorising him to designate his registered house a Seamen's Licensed Lodging-House.

A license may contain such conditions not being inconsistent with the laws, bye-laws, and regulations for the time being in force in the City, and being specified in the license as the Council see fit.

4.—Such license shall not be granted in respect of any house not being a registered common lodging-house or registered lodging-house; nor in respect of any house where intoxicating liquor is sold, nor in respect of any house occupied or used for the purpose of the business of a clothier, or outfitter, or slop dealer.

Such license shall not be granted to a person who holds a license for the sale of intoxicating liquor, or who is engaged or interested in the business of a clothier, outfitter, or slop dealer.

Provided always that each licensee may sell and supply to bona fide seamen boarders in his house, and to no other person or persons, clothes and slops upon the following conditions, viz.:—

(1) That the licensee submit to the Local Marine Board, annually, or oftener if required, a scale of charges for board, lodging, clothing, and portorage, to be made in or in connection with his house for the approval of the said Board.

(2) That the licensee shall at all times keep hung up in the dining or common room of his house, in a conspicuous position, where it may be seen by all the boarders, a certified copy of the scale of charges approved by the Board.

(3) That the licensee deposit a like certified copy of the scale of charges with the Superintendent of the Mercantile Marine Office of the Local Marine Board.

(4) The licensee shall not make a higher charge than is provided for by the scale, or any charge not provided by the scale on any pretence whatever.

(5) Any dispute respecting any item of account shall be referred to the Superintendent of the Mercantile Marine Office, whose decision shall be final.

5.—The Council shall cause to be kept a Register of all licenses granted under these bye-laws, and the suspension or revocation of any license shall be noted in that register.

6.—A license granted to any person under these bye-laws is not transferable to any other person, and any holder of a license who transfers or lends the same to any other person is deemed guilty of a breach of these bye-laws.

7.—A license granted under these bye-laws continues in force (subject to suspension or revocation, as in these bye-laws provided) for one year from the date of the grant thereof, but the Council may at their discretion refuse to renew any license.

8.—A license granted under these bye-laws may be suspended or revoked by the Council on breach of any of its conditions, or on the conviction of the holder of any felony, misdemeanour, or offence against any law, bye-law, or regulation for the time being in force in the City, or on the Council being satisfied that the holder has been guilty of a breach of the Merchant Shipping Act, 1854, or the Acts amending the same, or has kept a house in which drunkenness, gambling, or immoral or fraudulent practices prevail, or has been a party to such proceedings, or neglects to remove from the lodging-house any persons of known immoral character who may have entered therein.

Within seven days after suspension or revocation of a license the holder shall deliver his license to the Town Clerk; but at the expiration of a period of suspension the license shall be returned to the holder.

9.—Every keeper of a Seamen's Licensed Lodging-House, and every other person having or acting in the care or management thereof, shall at all times when required by the Medical Officer of Health, or Lodging-House Inspector, or Inspector of Nuisances of the District, the Chief Constable or any Inspector of the City Police Force, or any Detective officer specially authorised by the Chief Constable for the purpose, or any officer of the Board of Trade or Local Marine Board, give them, or any of them, free access to such house.

10.—Any person who, not being the holder of a license under these bye-laws, and any holder of a license who, during a period of suspension, uses or publishes any sign, notice, inscription, ticket, placard, advertisement, circular, letter, or other document stating or implying that his house is a Seamen's Licensed Lodging-House, is deemed guilty of a breach of these bye-laws. Every person guilty of a breach of these bye-laws shall be liable to a penalty not exceeding five pounds.

11.—Nothing in these bye-laws shall in any way prejudice or affect the operation of the enactments, bye-laws, or regulations applicable to any registered common lodging-house or registered lodging-house as such, or to any keeper of any such house.

The foregoing bye-laws must necessarily exercise a beneficial effect upon those houses which are licensed as Seamen's Licensed Lodging-Houses, but the great bulk of common lodging-houses, to which seamen commonly resort, are dealt with by regulations under the Common Lodging-Houses Act of 1851.

Applications from the keepers of Registered Common Lodging-Houses for licenses authorising the designation of such Registered Common Lodging-Houses as Seamen's Licensed Lodging-Houses, are infrequent, only thirteen such licensed lodging-houses now being on the register; these provide accommodation for 213 seamen.

The number of licenses granted since the adoption of the Seamen's Licensed Lodging-House Bye-laws is 27. Fourteen have been given up, none withdrawn, and there are 13 at present on the register.

It has not been found necessary to institute proceedings under the bye-laws in question.

Some years ago the holders of licenses to keep Seamen's Lodging-Houses were authorised by the Board of Trade to board vessels and seek for lodgers, and while this privilege was granted there was an advantage in holding such a license, but that privilege being now withdrawn, it does not appear that there is any advantage to the keeper of a common lodging-house to have his premises registered as a Seamen's Lodging-House, and hence probably the small number upon the register.

SUB-LET HOUSES.

These are houses, one or more rooms of which are let off in each case by the chief tenant or owner of the house to members of one or more other families. The Bye-laws provide for the registration and inspection, in order to prevent overcrowding, and to ensure attention to cleanliness and sanitary requirements.

The number added to the register during 1899 was 750, making the total on the register on the 31st December, 17,549. The chief reason of the increased number on the register in 1899, compared with 1898, is that large numbers of navvies and labourers, with their families, have come into the City during the year, and have found lodgings in these houses; a number of houses demolished during the year by the Insanitary Pro-

perty Committee, as unfit for human habitation, had been on the sub-let register, but these are, of course, deducted from the total. The number of visits paid to sub-let houses during the night was 16,754, and during the day 57,531, with the result of finding 1,090 rooms overcrowded. In addition to overcrowding, the cases of permitting males and females not married to occupy the same room come under the notice of, and are entered in the books of, the Inspectors. There were 598 rooms thus indecently occupied. The character of the indecent occupation may be judged from the following facts:—In 298 instances one man and two women were found in the same bedroom; in 229 instances two men and one woman; in 33 instances two men and two women; in 14 instances one man and three women; in 14 instances three men and one woman; in 4 instances three men and two women; in 3 instances two men and three women; in 1 instance seven men and two women; in 1 instance four men and three women; and in 1 instance four men and one woman. These cases are commonest amongst the poorest and most ignorant inhabitants of the squalid districts. They appear to be the outcome of ignorance and indifference, and not of immoral intent.

Informations were laid against 1,176 chief tenants, “room-keepers,” for breaches of the bye-laws, viz.:—

Overcrowding	...	...	...	...	708
Floors not washed	...	...	...	...	155
Floors not swept	...	...	...	...	310
Refusing admission	...	...	...	...	2
Obstructing Officer	...	...	...	...	1
					<hr/>
Total	...	...	...	...	1,176

As the result of proceedings before the Stipendiary Magistrate, fines were inflicted as follows:—982 fined 1s. and 1s. costs; 124 fined 1s. 6d. and 1s. 6d. costs; 25 fined 2s. and 2s. costs; 11 fined 2s. 6d. and 2s. 6d. costs; 21 fined 5s. and 4s. 6d. costs; 6 fined 10s. and 4s. 6d. costs; 4 fined 20s. and 4s. 6d. costs; and 3 fined 40s. and 4s. 6d. costs; making a total of fines levied during the year of £150 9s. 0d. Offences against the bye-laws have been fewer than in the preceding year. There were 1,572 more inspections by night than in the preceding year, but the day visits were 11,167 fewer.

EXAMINATION OF CELLAR DWELLINGS.

	<u>1898.</u>	<u>1899.</u>
Number of Street Cellars inspected	5,813	6,196
„ „ „ found empty	107	17
„ „ „ used for Lumber, &c.	1,923	1,843
„ „ „ found illegally occupied...	154	598
„ „ „ „ legally „	3,629	3,738
„ Notices issued to Owners... ..	276	852
„ „ „ Occupiers	170	565
„ Informations against Street Cellar Owners	10	22
„ Fined	3	6
„ of Informations against Street Cellar Occupiers	7	15
„ Fined	3	6
„ of Court Cellars inspected	419	258
„ „ „ found empty	35	12
„ „ „ used for Lumber, &c.	266	171
„ „ „ illegally occupied	11	16
„ „ „ legally „	107	59
„ „ and Street Cellars found dirty...	1,078	887
„ Informations against Court Cellar Owners	6	4
„ Fined	—	4
„ of Informations against Court Cellar Occupiers	8	1
„ Fined	5	1
Amount of Fines and Costs ...	£5 6 6	£14 5 0

The total number of cellars let as separate dwellings at present upon the register is 3,288, besides which there are 6,532 cellars used in conjunction with the dwelling-house above, but not let as separate dwellings.

The number of cellars filled in by the Health Committee, free of charge to the owners, during the year is 65, and the total filled in during the last ten years is 981.

About 11,000 people are at present housed in cellars.

Cellars occupied as dwellings must comply with certain requirements under the Liverpool Improvement Act of 1871, and the Public Health Act of 1875. The requirements of the Act specially relating to Liverpool may be summarised as follows, and any person who lets or suffers to be

occupied any cellar, in contravention of these requirements, is liable to a penalty not exceeding ten pounds:—

“ For the purpose of this enactment, every room, the surface of the floor of which is more than four feet below the level of the nearest street, shall, if intended to be used as a separate dwelling, be deemed a cellar dwelling, and every cellar which any person shall at any time apparently inhabit or in which any person shall be found between the hours of eleven in the evening and five o'clock in the morning, shall be held and taken to be occupied as a separate dwelling.”

“ Every cellar dwelling shall have a height from the floor to the ceiling in every part of such dwelling of not less than seven feet; no cellar dwelling shall have any part of its floor more than four feet below the surface of the footway of the adjoining street; every cellar dwelling shall have, both at the front and rear thereof, and for the full extent thereof, respectively, an area not less than two feet six inches wide in every part thereof, from six inches below the floor of the cellar to the surface of the ground adjoining the front and rear thereof respectively; if the cellar dwelling consists of two cellars back-to-back, it shall suffice if there be one area in front and one behind such two cellars; every area shall be protected by railings or gratings to the satisfaction of the Corporation; the steps for access to the cellar dwelling may be in the area, but shall not be opposite to the window of the cellar; the steps or access to the house above the cellar door may be across or over but not in such area, and shall not be over or opposite the window of the cellar; save as aforesaid the areas in the front and rear, respectively, shall be open and free from obstruction; every cellar or room in any cellar dwelling shall have an open fire-place, with a proper flue therefrom; every cellar dwelling shall have a water-closet, or other like convenience, and (if required by the Corporation) an ash pit or dust bin, to be built or placed in such situation as the Corporation think fit, and to their satisfaction; every cellar dwelling shall have at least one window in an outer wall, and not less than three feet square or nine square feet clear of the sash frame, and if such cellar dwelling consists of two or more cellars, each of such cellars shall have one such window; every such window shall either be a casement window, opening on hinges or pivots, or a sash window with double sashes opening at the top and bottom.”

The Building Surveyor has kindly supplied the following table:—

NUMBER OF HOUSES ERECTED AND TAKEN DOWN DURING YEAR ENDING
31st DECEMBER, 1899.

DISTRICTS.							Number erected.	Number taken down
Scotland	...	...	..	...	...	..	5	128
Exchange	...	...	...	...	..	...	65	217
Abercromby	...	...	...	..	...		2	175
Everton...	...	...	...	...	...	..	98	9
Kirkdale	...	...	...	...	...	..	49	2
West Derby (West)	...	..	...	...	...	..	99	126
Toxteth...	...	...	...	...	...	..	17	94
Walton ..	...	...	..	..	..	...	474	1
West Derby (East)	..	...	..	..	..	...	532	22
Wavertree	...	...	...	...	...	...	777	7
Sefton Park (late Toxteth Rural.)	...	...	...	...	...	..	240	—
Total ..							2,358	781

The City Engineer has kindly supplied the following:—

Number of cellars filled in during 1899	...	...	...	...	...	65
„ „ „ the last 10 years	...	...	...	...	...	981

SEWER VENTILATION TO END OF 1899.

Number of 9-inch by 6-inch, 9-inch, 6-inch, 6-inch by 4-in, 4-inch by 4-inch, 4-inch, and 3-inch Iron Pipe Ventilating Shafts	...	...	1,088
Number of Street Ventilating Manhole Covers and Gratings	...	...	6,755

CANAL BOATS.

The Leeds and Liverpool Canal Company are the proprietors of the only canal having direct communication with Liverpool, and the length of the waterway within the City, exclusive of the locks which lead to the docks, is about 3 miles.

The number of inspections of canal boats during the year was 4,623, and the condition of the boats and their occupants, as regards matters dealt with in the Acts and Regulations, is indicated by the following information :—

Twenty-four boats, not registered by their present owners, were found to be used as dwellings. In 15 of these cases written notices were sent to the owners, and in 9 verbal notices were given to masters. The notices were complied with in 23 cases; in one the registration was not completed on December 31st.

Thirty-eight boats were found without certificates on board. Notices were sent to the owners in each case, and were complied with.

Forty boats were found without the registered number painted on both sides of the boat. Notices were sent to the owners in each case, and the omission rectified in 34 cases. Six have not been seen in the district since.

In 19 cases defective second bulkheads were reported. Notices were sent in each case, and complied with.

In 9 boats the cabins required painting. Notices were sent to the owners in each case, and complied with.

Dirty cabins were reported in 8 cases. In 1 case verbal notice was given to the master, and in the others written notices were sent to the owners. In 7 cases in which the notices were sent to the owners, they were complied with; and one not being complied with, an information was laid against the master, and a small fine inflicted. The cabin was subsequently cleaned.

Beside the foregoing, there were 111 instances of infringements of the Acts and Regulations, caused by leaky decks (60), general leaky condition of boats (8), no doors to lockers (4), broken scuttle covers (5), defective ventilation (6), broken floors (11), no water casks on board (15), defective stoves (2). In each case notices were sent to the owners. Ninety-seven of the notices were complied with, and 14 have not been re-inspected.

Information were laid in 5 cases, viz., non-separation of sexes, 3; overcrowding, 1; dirty cabin, 1. In all of these cases fines were inflicted, varying from 1s. and 1s. costs, to 2s. 6d. and 2s. 6d. costs, and amounting to a total of 14s. 0d.

Only one case of infectious sickness, viz., erysipelas, occurred on boats during the year. The case was removed to hospital, and the cabin disinfected and cleansed.

The entire number of infringements of the Acts and Regulations referred to in the Report occurred on 156 boats, in several instances the offence being repeated on the same boat.

Twenty-eight notices were sent to the School Board of children living on canal boats, and not attending any school.

The number of boats on the register is 626. Nine boats have been removed from the register, as it was ascertained that 4 of them had been broken up, that 2 had been sold, and were no longer used as dwellings, and 3 were removed from the register at the request of the owners, being disused. It is probable that other boats have been broken up, or have left the district, but in the absence of definite evidence of this, the boats remain on the register.

During the year 36 new boats were registered, 28 re-registered on account of changes of owners, 5 re-registered on account of structural alterations, and 1 re-registered owing to the boat's name being changed. All boats re-registered in consequence of a change of owners, or the name of the boat being changed, or on account of structural alterations, retain their original numbers.

Copies of the registration certificate were issued to the owners of 8 boats owing to the original ones being worn out.

There were 86 changes of masters reported, and the fact duly recorded on the register.

In 1898 the Canal Boat Inspectors were appointed as Port Sanitary Inspectors, an appointment which authorised them to inspect all classes of boats, as a difficulty arose in regard to certain boats plying upon the canal which were not registered under the Canal Boats Act, but which had been registered by the Board of Trade under the Merchant Shipping Act. Twenty-six visits were made to boats of this class, and all were found correct.

BAKEHOUSES.

The sanitary control of Bakehouses is dealt with under the Factory and Workshop Acts and Public Health Acts, which prescribe the following regulations :—

Every bakehouse must have the whole of the interior walls and ceilings, and all passages and staircases of the bakehouse, painted, varnished, or lime-washed; if painted or varnished they must be washed with hot water and soap at least once in every six months, and the paint or varnish renewed once at least in every seven years; if the walls, &c., are lime-washed, the lime-washing must be renewed once at least in every six months.

No sleeping-place shall be permitted on the same level as a bakehouse, and forming part of the same building, unless it is effectually separated from the bakehouse by a partition extending from floor to ceiling, and unless ventilated by an external glazed window of at least nine superficial feet in area, of which area at least one-half may be fully opened for ventilation.

No water-closet or ashpit shall be within or communicate directly with the bakehouse. The cistern for supplying water to the bakehouse shall be separate and distinct from any cistern for supplying water to a water-closet. No drain shall have an opening within the bakehouse.

No place underground may be used as a bakehouse unless it was so used at the commencement of the Factory and Workshop Act, 1895.

All bakehouses must be kept in a cleanly state, free from effluvia arising from any drain, water-closet, or other nuisance; they must be properly ventilated, and possess at least 250 cubic feet of space for each person during ordinary working hours, and 400 cubic feet during overtime. A reasonable temperature must be maintained, and suitable sanitary conveniences provided for those employed in the bakehouse.

By Section 3 of the Workshop Act, 1891, if any child, young person, or woman is employed in a bakehouse, the Medical Officer shall, on becoming aware thereof, give a written notice to Her Majesty's Inspector of Factories.

Where any room or place used as a bakehouse is in such a state as to be, on sanitary grounds, unfit for use as a bakehouse, the occupier is liable on summary conviction to a fine not exceeding forty shillings.

Fifty-seven bakehouses were added to the Register during 1899; about one-half of these are bread-bakers and confectioners, the remaining half are small pie and cake shops, which require supervision.

During the year three cellar bakehouses have ceased to be used for baking purposes, the ovens demolished, and the premises reconstructed for other purposes.

Number of Bakehouses on Register, 31st December, 1899...	...	1,027
„ Bakehouses added to Register during 1899	...	57
„ Bakehouses struck off Register during 1899	...	32
„ Visits paid to bakehouses	...	3,830
„ Bakehouses found dirty (walls and ceilings)	...	377
„ Notices issued for lime-washing	...	275
„ Bakehouses lime-washed without notice...	...	102
„ Notices issued for defective ventilation...	...	29
„ „ „ to cleanse store cisterns and provide water from main	...	1
„ „ „ to repair defective drains and waste pipes	...	9
„ „ „ to discontinue using bedrooms opening directly into bakehouse	...	1
„ „ „ to take drains out of bakehouses	...	9
„ „ „ to repair defective floors and walls	...	16
„ „ „ to repair defective ceilings	...	14
„ „ „ to provide suitable water-closet accommodation	...	7
„ „ „ to remove and cease to keep animals in bakehouse	...	1
„ „ „ to cease to use bakehouses unfit owing to insanitary conditions	...	2
„ „ „ to cleanse floors, windows, areas, tables and troughs	...	77
„ „ „ to cease to use as bakehouses places underground not in conformity with Act, 1895	...	10
„ „ „ to remove accumulations of foul water		2
„ „ „ „ „ trade refuse		21
„ „ „ to repair defective roofs	...	2
Number of References to Government Factory Inspector...	...	33

All the above Notices were complied with except in two instances, for which informations were laid, viz. :—In one instance for using premises unsuitable for baking purposes, the defendant was fined 20s. and costs, and on a second information for a similar offence, was fined 40s. and costs; the defendant afterwards left the premises. In the other instance for defective ceiling and floor, the defendant was ordered to pay 2s. costs, and to do the necessary work in seven days.

There are grave objections to the construction of bakehouses, any part of which is underground.

The chief objections are :—

(1) The difficulty in obtaining proper fall for draining when cleansing the bakehouse floors.

(2) Risks from backing up of drains in times of flood, or from choking of drains.

(3) The difficulty in obtaining adequate light and ventilation, owing to the way in which the ovens are usually arranged.

(4) The risk of dust and other refuse being blown into the bakehouse, and on to the tables, &c., owing to the windows being nearly on a level with the street.

(5) The difficulties in preventing the areas from becoming receptacles of rubbish and filth.

Drains within bakehouses are prohibited by the Factory and Workshops Act, 1895, which provides that no opening to a drain shall be within the bakehouse. Consequently all the bakehouses in use in this City have had the drains removed.

SEATS FOR SHOP ASSISTANTS ACT, 1899.

This Act is carried out by the Factory and Workshop Inspectors.

SHOP HOURS ACT, 1892—5.

The object of the Act is to prevent the employment of young persons for such an excessive number of hours as will prejudice the health of these employés.

During 1899, under the above Act, there have been 4,670 visits paid to shops during the day, and 2,635 visits made after six o'clock; in 6,658 instances the shops were found to be correct, and 647 incorrect.

The persons concerned have generally evinced readiness to comply with the requirements of the Act, and have thus lessened the difficulties in its administration. A steady diminution will be noticed in the number of occasions in which it was necessary to take police proceedings during the last three years.

			<u>1897.</u>	<u>1898.</u>	<u>1899.</u>
Number of Shops visited (day)	...	...	5,048	4,973	4,670
„	„	found incorrect	610	442	395
„	„	visited after 6 p.m	2,583	2,599	2,635
„	„	„ found incorrect	286	236	252
„	copies of Act distributed by the				
	Inspectors	...	309	246	174
„	Informations for excessive				
	hours	...	4	—	1
„	Convictions		4	—	1
„	Informations for not exhibiting				
	Notice of Act and Require-				
	ments as to hours of work		18	7	3
„	Convictions		17	4	3
Total number of Informations	...	...	22	7	4
„	Convictions		21	4	4
<hr/>					
Total Amount of Fines and Costs...	£19 6s. 6d.	£3 0s. 0d.	£2 15s. 6d.		

FACTORY AND WORKSHOPS ACT, 1878—95.

The Inspectors appointed under the above Acts for sanitary purposes have visited a large number of Workshops, the summary of which is appended:—

SUMMARY OF VISITS PAID TO WORKSHOPS.

Bamboo Workers	17	Milliners	137
Basket Makers	9	Mineral Water Manufacturers ...	40
Black Lead and Blue M'f'rs.	8	Nail Makers	9
Bootmakers	185	Net Makers	8
Bottlers	37	Paint and Varnish M'f'rs.	9
Box Makers	27	Paper Cutters, &c.	24
Brassfinishers, &c.	10	Photographers	17
Brush Makers.....	24	Plasterers	7
Cabinet Makers and Joiners	386	Pickle and Sauce Manufacturers.	80
Canned Goods	9	Picture Framers	17
Cap Makers.....	11	Pipe Mounters	11
Carvers and Gilders.....	54	Printers' Rollers	7
Chair Makers	12	Plumbers	30
Chemists' Sundries Manufacturers	28	Rubber Goods Manufacturers ...	11
Coach Builders	32	Sack and Bag Makers	134
Cloth Sorters	19	Saddlers	54
Clog Makers	10	Sailmakers	26
Confectioners	94	Seed Dryers	5
Coopers	69	Slipper Makers	10
Cork Cutters	12	Sheet Metal Workers	20
Cotton Sorters	25	Smiths	116
Cycle and Bassinette Makers.....	33	Soap Boilers	7
Dentists	12	Stay and Corset Makers	16
Disinfectant Makers	8	Tailors	1,535
Dressmakers	749	Tarpaulin Makers	8
Drysalts	23	Theatrical Properties Manufacturers	9
Enamellers	6	Ticket Writers	6
Engravers	14	Toy Makers	5
Firewood Manufacturers.....	13	Trunk and Portmanteau Makers.	22
Fish Curers	8	Umbrella Makers	27
French Polishers	25	Underclothing Makers	128
Furriers	8	Upholsterers	69
Galvanisers	25	Venetian Blind Makers	7
Ink Makers	18	Ventilating Engineers	7
Knitters	17	Watchmakers and Jewellers	38
Laundries	514	Wheelwrights	52
Lead Light Makers, &c.	17	Wig Makers	7
Leather Goods Manufactnrers ...	5	Various	133
Marble Masons	17		
Marine Stores.....	709	Total.....	6,189
Mattress and Bed Makers	41		

The number of visits paid to workshops, &c., the number and character of the Sanitary defects found, and the action taken, are indicated in the following table:—

					<u>1898.</u>			<u>1899.</u>
Visits to Workshops	...	..	..	...	5,879	...	...	6,189
Workshops found incorrect	..	...	...	...	1,994	...	...	2,109
Number of Workrooms, dirty walls	...				637	..		597
„ „ „ ceilings					648	..	...	615
„ „ „ floors	..	...		...	18		...	49
„ „ „ urinals...	...			...	6	...		15
„ „ „ water-closets	...			...	45	..	...	119
„ „ „ lavatories	...			...	27	...	...	15
„ „ „ insufficiently ventila- ted, arising from structural defects or from want of attention	...			...	106	..	..	125
„ „ „ found overcrowded...					20	...	..	21
„ „ Defective Drains and Water- closets; also insufficient water- closet accommodation, and other nuisances...	...	...	...	...	459	...	..	494
„ „ Notices issued { upon Owners	...			...	224	...	...	191
„ „ „ { upon Occupiers	...			...	407	...	...	274
„ „ „ not complied with (These are known to be in progress.)	..			...	5	...	...	4
„ „ Informations	...	...	...	...	6	...	...	9
„ „ Fined	..	...	...	...	1	...	..	6
„ „ of References to Government Factory Inspector	..	...	...	...	79	...	...	72
„ „ Workshops inspected, protected...					255	} 304	146 31 }	177
„ „ „ „ non-protected					49			
„ „ Workrooms measured	...	...			209	...	..	190
„ „ Workrooms closed owing to insani- tary conditions	...	...			3	...	...	1
Amount of Fines and Costs	...				£1 4 6		£8 1 0	
Separate closet accommodation provided for females in workshops where both sexes are employed	...	..	...	...		...	...	<u>1899.</u> 26
W.C. accommodation provided for males	..		...	...		...	...	13
Total	...	...	..	...		...	...	<u>39</u>

SMOKE NUISANCES.

Proceedings for the abatement of Nuisances caused by the emission of excessive smoke from factory chimneys or from steamers, were taken under the Liverpool Sanitary Amendment Act, 1854, sections 24 and 25, and the Liverpool Improvement Act, 1882, section 77, with the following results:—

					<u>1898.</u>	<u>1899</u>
Number of reports of excessive smoke from	Manufactories	...			527	471
„	„	„	Steamers	in river	305	351
„	„	„	„	dock	71	52
					<u> </u>	<u> </u>
	Total	...	...	...	903	874
					<u> </u>	<u> </u>

Admonished by the Health Committee or written to in respect to nuisances caused by the emission of excessive smoke:—

Manufacturers	...	...	...	...	...	4	5
Steamers	...	...	...	...	...	0	7
						<hr/>	<hr/>
	Total	...	...	...	..	4	12
						<hr/>	<hr/>

	<u>1898.</u>	<u>1899.</u>
Chief Inspector and Assistants gave M'facturers	555 Cautions	542 Cautions
„ „ „ Steamers	95	73
Total... ..	<u>650</u>	<u>615</u>
Number of enquiries respecting Owners	<u>273</u>	<u>284</u>

					<u>1898.</u>	<u>1899.</u>
Informations against Manufactories	...	...	...	...	523	466
„ „ Steamers in river...	...	...	...	...	268	312
„ „ „ dock...	...	...	...	...	69	52
					<hr/>	<hr/>
Total	...	...	...	...	860	830
					<hr/>	<hr/>
Acquitted or withdrawn, Manufactories	...	...	...	...	5	5
„ „ Steamer cases	...	...	...	...	9	7
					<hr/>	<hr/>
Total	...	...	...	...	14	12
					<hr/>	<hr/>

From careful observations during the course of inspections, it has been found that the nuisance caused by the emission of excessive smoke from chimneys is due to the following causes:—

1. Improper construction of the furnaces, and the want of sufficient boiler room.
2. Inferior quality of the fuel used.
3. Improper firing and want of attention on the part of the stokers.

These causes are usually associated; even an improperly constructed furnace, if fed with a good quality of fuel and attended to by a careful and skilful man, can be so used as to avoid making unnecessary smoke, and, at the same time, the utmost amount of work of which it is capable can be obtained from it. A furnace of the best construction and fitted with the most approved appliances for preventing smoke, may, on the other hand, give rise to the greatest nuisance owing to improper attention and the use of poor fuel.

In order to secure good hand-firing with a minimum of smoke, it is requisite that the coal should be of fair quality, and that it should be supplied in small quantities at regular, frequent intervals. The fuel should be maintained at a uniform depth on the fire-bars, so that no gaps or open spaces may be left through which cold currents of air may pass to diminish the efficiency of the furnace, and at the same a sufficient supply of air should be given over the fire to consume the gases arising from the fuel.

The difficulty of attaining this object by manual labour has led to the introduction of mechanical stokers, many forms of which are now used by manufacturers, and the various experiments which have been made, from time to time, go to prove that such stokers, when properly used, effect a saving of 11 to 20 per cent. in the cost of the coal used, together with a considerable diminution of the quantity of smoke emitted from the chimney.

As proving the saving in cost, it has been found that where, with an ordinary hand-fed furnace, 11lb. of coal will evaporate about 8lbs. of water, under the same conditions, in a mechanically-fed furnace, 11lb. of coal, of a cheaper quality, will evaporate about 9lbs. of water.

The mechanical stokers in most general use may be classified as “sprinklers” and “cokers.”

THE SPRINKLING MECHANICAL STOKER.—There is no doubt that this form of stoker will abate the smoke nuisance, if left to perform its work

without interference; but it is the cause of another nuisance which is equally objectionable, and that is—the emission of gritty dust, or powder, consisting of fine, partly-burned cinders. This is caused by the scattering of the fine particles of coal over the surface of the fire. As soon as the more readily combustible portions of the coal are consumed, the lighter and more incombustible residue is carried away by the draught of the chimney, and discharged over the surrounding neighbourhood, causing complaints from those living near.

THE COKING MECHANICAL STOKER.—The coking furnace is found by experience to be the best form of mechanically-fed furnace yet invented. There are several patterns, the makers of which are not named here for obvious reasons; but the same principle underlies the whole of them, which is, a constant and regulated supply of coal to the front of the furnace, the gradual conversion of the coal into coke whilst it is being assisted to the back of the furnace by two sets of moving bars, which prevent the clinker from adhering to them by a reciprocating movement, and the final discharge of the ash and clinker over the ends of the bars into the ash-pit. In addition, a current of air is induced by steam jets through the furnace by some makers.

It has to be borne in mind that when the fireman in attendance on a boiler which is fitted with automatic stokers has to force the fires by levelling the fuel in the furnaces, and occasionally charging them by hand, he defeats the object of the appliance.

Owing to the rough usage to which appliances in a stoke-hole are subjected, manufacturers looked with disfavour upon an elaborate and costly machine which was easily put out of order, and they came to regard the whole thing as worthless. This prejudice survived for a long time the introduction of the simpler and stronger machines of the present day, but it is now giving way to a wider and a more intelligent interest, which has the effect of acting as a stimulus to further efforts for smoke prevention.

A very simple smoke preventer, which claims to be also a fuel economiser, has lately been fixed on two Lancashire boilers, with four hand-fed furnaces, on premises belonging to a firm in this city.

It consists of a cast-iron bridge, with slots or elongated apertures in it placed at the back end of the fire-bars. The slots are narrower at the top than at the bottom, and taper backwards, so as to allow ashes to pass away to the ash-pit. A small pipe, leading from the steam space in the boiler, is fixed in the back of the bridge. At every alternate slot

in the bridge there is a corresponding small perforation in the pipe, through which, when a valve is opened, steam passes into the furnace after a fresh charge of coal has been thrown on. Behind the bridge there is a hinged damper-door, which is opened or closed by means of a handle in the front of the ash-pit, thus the supply of air to the fire-box can be regulated.

By this arrangement an intense zone of heat is created at the bridge end of the furnace, and the gases passing through it from the fuel on the bars, on their way to the flues and chimney stack, are totally consumed.

The appliance has one defect, however, in being subject to whatever attention the fireman may choose to give it. Judging from trials which have been made with this appliance, it is very efficient in its action as a smoke preventer, whilst there are few working parts to get out of order. No reliable tests have been made as to the economical results obtainable from it.

OFFENSIVE TRADES.

Applications for permission to carry on the following offensive trades were made during the year, and a report by the Medical Officer of Health on each application was submitted to the Health Committee:—

Premises.	Business.	Granted.	Refused.	Date, 1899.
91, Banastre Street..	Fat Melting	Not proceeded with.		22nd June.
9 & 11, Oriel Street..	„ and Bone Boiling		1	7th Sept.
141, Vauxhall Road.	Grease and Tallow Refinery	1 Rescinded.		7th Sept. 28th Sept.
Tapley Place and Douro Place.	Bone Boiling		1	16th Nov.

In the cases in which permission is granted, conditions are imposed requiring that the premises be put in proper order to the satisfaction of the City Engineer and the Medical Officer of Health, that no public nor private nuisance be caused, and that the business be discontinued whenever the Council shall so require.

The number of inspections of premises where offensive trades are carried on was 1,012, as against 636 in 1898.

Total No. of Visits to Bone Boilers...	...	..	...	...	81
.. Fell Mongers	..	...	...	...	28
.. Soap Boilers	...	...	...	...	138
.. Fat and Tallow Melters	...	...	...	...	196
.. Tripe Boilers	...	...	...	...	96
.. Gut Scrapers	...	...	...	..	71
.. Fish Skin Dressers...	...	...	...	...	5
.. Tanneries	...	...	...	...	41
.. Knackers' Yards	...	...	...	...	246
.. Paint and Resin Works	...	...	...	...	17
.. Rubber Works	...	...	...	...	93

KNACKERS' YARD RETURNS.

	Horses Destroyed.	Horses taken in Dead.	Asses Destroyed.	Cows Destroyed.	Other Beasts.
Holme Street ...	1,260	1,620	36	57	—

MARINE STORES.

						<u>1898.</u>	<u>1899.</u>
Number of Visits	...	...	...	...	...	811	1,111

MANURE YARDS AND WHARVES.

						<u>1898.</u>	<u>1899.</u>
Number of Visits	...	...	...	...	...	598	575

S T A B L E S .

The number of visits was 7,967. Conditions prejudicial to health arise from stables on account of defective construction, or of improper situation, or from neglect of lighting, ventilation and cleansing of the stables. Under existing legal powers, great difficulty is experienced in dealing with stables, and complaints are very frequent of nuisances occasioned by the causes indicated, the most frequent, perhaps, being neglect of cleanliness.

A large number of stables are either so defective, or so little care is taken of them, that the visits of the inspectors are necessary almost every day, in order that they may be under practically constant observation.

The Health Committee have endeavoured to procure adequate powers to deal with stables, and a clause has been inserted in the Corporation Bill to enable the Corporation to make bye-laws, (*a*) for regulating the lighting, ventilation, cleansing and draining of stables, whether erected before or after the passing of this Act; (*b*) for regulating the situation and mode of construction of stables within the City.

This exceedingly useful clause, the outcome of careful and deliberate consideration of the Health Committee, confirmed by the unanimous vote of the City Council, was thrown out at the town's meeting, by persons who gave no reasons for their objections to it, and who probably had not considered the nuisances which the clause was intended to remove.

	<u>1898.</u>	<u>1899.</u>
Number of Visits to stables	3,341	7,967

FEMALE SANITARY STAFF.

The Female Sanitary Staff was permanently increased during the year by the appointment of three officers who, during a considerable part of the preceding year, had been engaged temporarily.

The work has been carried out upon the lines previously described, the greater portion of the time and attention of the female inspectors being devoted to house-to-house visitation, more especially to the homes of those of irregular and dirty habits.

Considerable attention has been paid during the year towards the aged and infirm inmates of the poorer class of dwellings with beneficial results.

The female inspectors report many instances in which improvement is attributed to the compulsory removal of families from insanitary dwellings, which have been dealt with by the Insanitary Property Committee.

During the summer months a large number of cases of fatal infantile diarrhoea were investigated by the female staff, and besides investigation into the circumstances attending the fatal cases, the female inspectors gave instructions to parents who appeared to be ignorant of the methods in which young infants should be fed. Amongst the forms of sickness investigated by the staff were measles, pneumonia, bronchitis and whooping-cough.

A number of workshops in which women are employed are systematically inspected.

STATISTICS OF WORK OF FEMALE SANITARY STAFF.

						<u>1898.</u>	<u>1899.</u>
Number of Street Houses examined ...	...	...	...			15,888	20,040
„ Court „ „ ...	...	...	...			8,908	11,029
„ Cellars ...	...	...	...			2,207	3,577
„ Families found dirty ...	..	..	..			2,581	3,419
„ Re-visits to Families ...	...	...	...			34,709	27,474
„ Houses found dirty...	...	...	...			4,562	8,076
„ Cellars „ „ ...	..	..	..			364	778
„ Notices issued to cleanse dirty premises...						853	700
„ „ „ floors and woodwork }						21	119
„ References to Sanitary Inspectors ..						3,762	3,014
„ „ „ Lodging-house Inspectors ..						21	25
„ „ „ Workshop Inspectors ...						—	61
„ „ „ Veterinary Department ..						42	6
„ „ „ City Engineer ...	...	...				28	47
„ „ „ Water Engineer ...	...	...				662	505
„ „ „ Building Surveyor ...	...	...				10	8
„ „ „ School Board ...	...	...				12	11
„ „ „ The Shelter, Islington ...						137	130
„ „ „ Relieving Officer ...	...	...				10	7
„ Sickness Enquiries (Children) ...	...	...				—	1,292

INFECTIOUS DISEASE IN SCHOOLS.

One of the most important measures to prevent the extension of infectious disease in schools is to ensure that, when sickness exists at the homes of the scholars, the earliest possible information shall be given to the Head Master, the Head Mistress, or Principal.

Usually the first intimation of such sickness is received by the Medical Officer, under the terms of the Notification Act, which, however, does not include measles and whooping-cough, both of which are liable to spread extensively amongst children of school age.

As soon as notification of infectious sickness is received by the Medical Officer of Health, the address of the patient and the nature of the illness are entered in a register specially made for the purpose, and from which each of the District Inspectors takes such addresses as are on his own district; he initials the register, and becomes responsible for ascertaining and reporting the names of any children of school age who may be living at the addresses in question, and the school they attend. It is part of the Inspector's duty to forthwith warn the parents, or those in charge, that the children must be kept from school until fourteen days after the necessary disinfection has been carried out; he leaves a postcard, addressed to the Medical Officer of Health, to be filled up and forwarded by the parent or other responsible person, as soon as the doctor in attendance states that the disinfection may be proceeded with.

The information obtained by the Inspector is duly entered in a permanent register, and intimation is sent by postcard the same day to the Head Master of the school the children attend if it is a Board School, or to the Principal in the case of a private school.

The permanent register in which the names have been entered is then passed on to the Clerk to the School Board, in order that the entries may be copied by his staff, and an intimation given to the School Visitor, warning him that the children from the address indicated are prohibited from attending school until further notice is sent to him.

When the source of infection is removed (either by removal of the patient to hospital, or by the recovery or death of the patient), the house and bedding are disinfected by the officers of the Public Health Department. These proceedings are duly recorded in a register, called the Disinfecting Book, which is also passed on to the Clerk to the School Board in the manner already described.

At the expiration of a fortnight from the date of disinfection, the School Visitor is notified to visit the house, and if no sickness of any kind has occurred in the interval, he reports accordingly, and the following day intimation is sent by postcard to the Head Teacher of the school, to re-admit the children.

Information is received by the Medical Officer of Health of diseases not included under the Notification Act, from school visitors, inspectors, teachers, parents, and others, who are supplied with printed postcards suitable for the purpose, and each District Sanitary Inspector initials the address situated in his district, and reports the names of the children, in a similar manner to that followed in the case of diseases included under the Notification Act.

In the case of measles and chicken-pox, disinfection is carried out with the consent of the occupier of the house; the children are not allowed to return to school until a fortnight after the sickness has ceased to exist.

In cases of whooping-cough, ringworm, &c., only the affected child is kept from school.

The postcards sent to the school for the purpose of notifying the existence of infectious disease at the home of a pupil are accepted by the Government Education Department, also by the Liverpool Council of Education, as a valid reason for the non-attendance of the children at school, and qualify them to receive any benefits which regular attendance would have entitled them to.

When necessary, a certificate is furnished to the school authorities, stating that the pupil was absent on account of infectious sickness at home.

It must be borne in mind that the methods now described are directed to the suppression of infectious disease, and although the child may be free from infection, and therefore, so far as the risk of infection is concerned, may with perfect safety return to school, yet it must be remembered that the child may not be sufficiently recovered physically to undertake at once the full work and discipline which attendance at school entails.

The permission of the Health Department to return to school, therefore, implies nothing further than freedom from infection.

NOTICES TO MASTERS OF SCHOOLS AND LIBRARIANS.

Arrangements have been made with the School Board that postcards shall be sent to the Board and to the Head Masters of the various schools informing them when children from infected houses attend their schools. 6,448 cards were sent last year, as against 4,383 in the preceding year.

Books borrowed from Lending Libraries which have been found in infected houses have been taken to the Disinfecting Station, and either destroyed or disinfected and returned. In the case of books which have been destroyed, compensation has been paid under the Public Health Act.

PUBLIC ELEMENTARY SCHOOLS.

VISITS MADE BY SANITARY INSPECTORS.

	<u>1898.</u>	<u>1899.</u>
No. of Visits to Schools	2,924	2,685
„ Waterclosets and Latrines found dirty or defective	284	222
„ Notices issued for defects	129	79
„ „ „ dirty closets	43	20

Owing to the prevalence of measles 37 schools were closed during the year, principally in May and June, for periods ranging from 14 to 21 days.

Closure of schools is found to be a very effectual way of checking the spread of measles, and the influence of school holidays in this connection is always very marked.

A comparison of the number of cases of measles which occurred during the three weeks preceding the school holidays and of those which occurred during the three weeks after the holidays, when precisely the same means of notification was available, shews the number of cases before the holidays to be 921, and the number of cases during the same period after the holidays 135.

THE AMBULANCE AND DISINFECTING STAFF.

The following table shews the number of patients removed by Officers of the Ambulance Staff, and the Hospitals to which they were taken :—

City Hospital North, Netherfield Road.	City Hospital South, Grafton Street.	City Hospital, Park Hill.	Brownlow Hill.	City Hospital East, Mill Lane.	City Hospital, Priory Road.	Northern Hospital.	Royal Infirmary.	Smithdown Road.	Southern Hospital.	Walton Workhouse.	Total.
866	721	563	113	267	30	17	3	19	11	1	2,611

For the removal of patients to hospital, and for the removal of infected bedding, and its return after disinfection, an adequate ambulance staff is maintained.

Four ambulance carriages are in use for the different forms of infectious disease. Bedding and clothing, after disinfection, are taken home by a staff and conveyance entirely distinct from that which removed them in the infected state.

All cases of Smallpox and all cases of Typhus Fever, with very rare exceptions, are removed to Hospital, and a special Inspector revisits the house from whence the patient was removed to ascertain whether any further sickness has developed. These inquiries are made at intervals of a day or two for one month, and any case of sickness, however trifling it may appear to be, is at once reported and visited by a medical man. Friends of the patient, and others who are known to have been directly or indirectly in contact with him are also visited. By these inquiries, persons who may be incubating the disease are discovered and removed to the hospital at the earliest possible stage, and often before any serious risk of infection has arisen. Without these inquiries, which have occasioned no inconvenience to anyone, the patients would have remained at home for a longer period, constituting centres of infection to the neighbourhood. The absence of friction indicates the care exercised by the Inspectors in carrying this system into execution (see pages 24 and 27).

The collection, removal, disinfection and return of infected bedding has been carried on as hitherto by the Ambulance Staff.

It has been found that in many instances in which compensation for clothing had been given in money to the poorer classes of people, that the money was spent in drink, and the people left without clothing. As a consequence of this, an arrangement was made with a firm of repute, to supply articles equivalent in value to those which had been destroyed, thus preventing an improper use of the money. There were difficulties incidental to this method, and the present plan is to keep at the depôt a stock of mattresses, bedding, &c., and to give it out to suitable applicants, whose clothing or bedding have been destroyed on account of infection, under the Public Health Act.

Instances of gross carelessness have occurred during the year, and on April 19th D. Porcelli was fined £2 and costs for exposing an infected person in Hunter Street, and on 13th December Julia Molloy was fined £5 and costs for a similar offence in Prince Edwin Street.

Owing to the delays and difficulties which arose from time to time in causing compliance with notices served upon owners to strip the wall-paper from the walls of infected rooms, this work has been undertaken by the Disinfecting Staff.

As soon as the infected wall-paper has been stripped, and the house ready for re-papering or other work, an intimation of the fact is sent to the owner.

In all cases of infectious disease the houses were disinfected by a trained staff, free of cost, with sulphurous gas; but whenever there was sickness in any room of the house, disinfectants were given to the tenants for use in the sick room until the sulphurous gas could be used safely. No house is considered properly disinfected until sulphurous gas has been used, and the wall-paper, previously sprayed with solution of perchloride of mercury, stripped. The wall-paper is conveyed in sacks, specially provided for the purpose, to the refuse-destructor and burnt. The existence of infectious sickness necessitates many visits by the persons in charge of disinfection, as the householder frequently omits to send information when the premises are ready. There were in all 8,363 visits paid during the year to houses for the purpose of disinfection, the number of houses completely disinfected being 4,097.

INFECTED HOUSES.

						<u>1898.</u>	<u>1899.</u>
Number of Infected Street Houses Inspected	...					3,114	3,481
„ „ Court „ „	...					198	194
„ „ Cellars „	...					43	53
„ „ Houses Re-inspected ..	...					244	95
„ Notes to Owners to Cleanse ...	...					2,450	2,837
„ Notices to Occupiers „ ...	...					259	283
„ Enquiries ... ..	...					18,714	17,206
„ Informations ... ..	...					6	—
„ Fined ... ..	...					—	—
„ Acquitted and Withdrawn on payment of costs ... ..	...					6	—
Amount of Fines and Costs ...						£0 3s. 0d.	—

There is an increase of about 367, compared with the preceding year, in the number of houses requiring to be dealt with on account of infection, and the falling-off in the number of re-inspections is due to the change in the system of dealing with infected wall-paper, already described.

INFECTED PREMISES CLEANSED BY DISINFECTING STAFF.

							<u>1898.</u>	<u>1899.</u>
Houses	...	..	..	...	..	...	3,417	4,341
Rooms	...	..	...	...	..	...	6,067	8,282

THE DISINFECTING APPARATUS.

The number of articles disinfected at the various Apparatus during the year amounted to 67,321.

DATE. 1899.	Number of Beds.	Number of Mattresses.	Number of Pieces of Bedding.	No. of Pieces of Wearing Apparel, &c.	Total Number of Articles.
January	495	316	3,831	3,267	7,909
February	382	266	2,676	1,057	4,381
March	359	228	2,200	779	3,566
April	466	256	3,144	595	4,461
May	306	248	2,039	732	3,325
June	438	223	2,736	2,576	5,973
July	433	242	2,883	2,224	5,782
August	301	172	2,077	3,708	6,258
September	434	178	3,431	5,895	9,938
October	391	142	2,653	1,337	4,523
November	391	177	2,533	1,509	4,610
December	455	207	2,894	3,039	6,595
Totals	4,851	2,655	33,097	26,718	67,321

The number of articles destroyed at the various Apparatus during the year amounted to 641, compensation being paid in conformity with the provisions of the Public Health Act.

DATE. 1899.	Number of Beds.	Number of Mattresses.	Number of Pieces of Bedding	No. of Pieces of Wearing Apparel, &c.	Total Number of Articles.
January	24	36	25	42	127
February	13	30	4	2	49
March	14	20	14	—	48
April	22	30	12	1	65
May	12	40	11	—	63
June	12	20	7	—	39
July	13	24	8	2	47
August	12	10	12	4	38
September	10	18	15	1	44
October	6	13	6	3	28
November	14	20	16	1	51
December	12	23	6	1	42
Totals	164	284	136	57	641

PRINCE'S DOCK MORTUARY.

The Mortuary at the Prince's Dock is for the reception of the bodies of persons who have been drowned, killed, &c., and upon which the Coroner desires to hold inquests. Bodies are taken to this Mortuary by the police, and when it may be necessary to make post-mortem examinations, any medical gentleman may have the assistance of an inspector on sending a communication to the Ambulance Superintendent, 54, Gascoyne Street.

BODIES REMOVED TO THE PRINCE'S DOCK MORTUARY.	
Number from River.	Number from City.
1	192

FORD STREET MORTUARY AND DISTRICT MORTUARIES.

BODIES REMOVED TO MORTUARIES.							
Green Lane.	Lark Lane.	Wavertree.	St. Martin's	Ford Street.	Park Hill.	Walton Village.	TOTAL.
11	5	1	110	136	...	2	265

The old St. Martin's Mortuary, which was completely worn out, was not used after the middle of the year; the site is to be laid out as a recreation ground, with grass plots and gravel walks.

At the beginning of June the new Mortuary in Ford Street was opened for the reception of bodies, which could not be kept at the homes in which they had died, without injury to the health of other inmates. The address of the caretaker is 65, Gascoyne Street.

CREMATORIUM.

The Crematorium in Anfield Cemetery is availed of by an increasing number of persons as a means of reverent disposal of the dead by cremation, but the system has not yet found the favour which it does in many important centres of population throughout Europe. The building is of attractive appearance, and the surroundings are appropriate.

CITY BURIAL GROUNDS AND GRAVEYARDS.

The accompanying photographs are inserted for the purpose of showing the advantages resulting from the action of the Health Committee in regard to city graveyards.



A Town Garden, formerly site of an old Grave Yard.





To illustrate the neglected condition of a City Grave Yard, now closed against further interments.

PROCEEDINGS UNDER THE DISEASES OF ANIMALS ACT, 1894.

The duties of the Inspectors under the Diseases of Animals Act, 1894, are to visit cattle steamers, both foreign and cross-channel, for the purpose of seeing that the provisions of the Foreign Animals Order, 1895, and the Animals Transit Order, 1895, are carried out.

Cattle steamers are examined as to fittings, ventilation, &c., and the cleansing and disinfection after landing animals is supervised, and overcrowding or injury to animals is reported.

At railway stations, cattle trucks and horse boxes are examined as to fittings, cleansing and disinfection, and the railway pens supervised.

Lairages and sale yards are visited to ascertain that they are cleansed and disinfected in accordance with the regulations of the City Council.

The increase in the number of horse boxes inspected during the year is owing to the opening of a Foreign Horse Repository at Stanley. A weekly sale takes place, a number of horses from which are loaded at Stanley Cattle Station.

The Diseases of Animals Act relates in the main to certain diseases communicable amongst cattle, sheep and swine, and provides for the separation of diseased animals from healthy ones, for the disinfection and cleansing of vessels, trucks, &c., in which animals have been carried, and it defines the action to be taken to limit and prevent the extension of disease. It also deals with certain forms of disease communicable by animals to man.

The Board of Agriculture, under the powers of this Act, issue orders from time to time dealing with diseases of animals, or with their protection during transit. The Board also prescribes the manner under which animals may be imported or moved from place to place.

The accompanying table gives the statistics of the proceedings taken under the Act or under the Orders of the Board of Agriculture:—

						<u>1898.</u>	<u>1899.</u>
Number of Visits to Railway Stations, including inspections made on Sundays	...	...	...	...	...	2,518	2,566
„ Inspections of pens	...	...	...	...	...	89,064	90,880
„ found clean	...	...	...	...	...	63,006	67,029
„ „ dirty and cleansed before being used.						26,058	23,851
„ Inspections of Trucks...	...	...	...	...	...	39,124	39,276
„ found clean	...	...	...	...	...	36,743	36,159
„ „ dirty and cleansed before being used, or leaving the City dirty	...	...	...	...	...	2,381	3,117

	<u>1898.</u>	<u>1899.</u>
Number of Inspections of Horse Boxes	533	1,012
.. found clean	343	760
.. .. dirty and cleansed before being used, or leaving the City dirty	190	252
.. Inspections of Vessels... ..	9,047	8,944
.. found clean	3,363	3,393
.. .. dirty and cleansed before being used, or going to Sea without cattle or cargo	5,684	5,551
.. Informations for dirty vessels used before being cleansed	3	1
Number of Inspections of Gangways	8,170	8,948
.. found clean	6,534	7,404
.. .. dirty and cleansed before being used	1,636	1,544
.. Inspections of Lairage and Sale Yards ...	4,784	4,554
.. found clean	3,729	3,389
.. .. dirty and cleansed before being used	1,055	1,165
.. Informations for landing fittings without consent in writing of the local authority	2	—
.. Informations for landing broken fodder ...	2	1
.. .. neglecting to slaughter injured animals ...	1	—
.. .. cruelly torturing a pig ...	1	—
.. .. removing animals without a license... ..	6	—
.. .. not providing sufficient ventilation to vessel ...	1	—
Total Number of Informations	16	2
.. Fined	12	2
.. Withdrawn	4	—

Amount of Fines and Costs£19 11s. 6d. | £2 4s. 6d.

INSPECTION OF SLAUGHTER-HOUSES, &c. 1898. 1899.

Number of Visits to Slaughter-houses made by Meat Inspectors	9,274	9,524
Number of Visits to Butchers' Shops made by Meat Inspectors	70,174	70,384
Number of Visits to Fish and Fruit Shops made by Fish Inspectors	52,634	55,754
Number of Visits to Fruit Shops made by Fruit Inspector	—	5,437
Number of Visits to Poultry Depôts made by Fish Inspectors	333	285

FISH PLATFORMS.

	<u>1898.</u>	<u>1899.</u>
Number of Visits	42	35

RETURNS OF ANIMALS KILLED IN THE CITY SLAUGHTER-HOUSES,
AND OF MEAT IMPORTED FOR SALE

As compared with the numbers in the preceding year, there is an increase of nearly 3,000 in the number of cattle slaughtered in the city abattoirs and slaughter houses in 1899, and there is a decrease of 1,400 in the number of carcasses imported for sale.

With regard to sheep, there is an increase of nearly 17,000 in the number killed in the city, and a decrease of over 40,000 in the number of carcasses imported for sale.

These numbers usually fluctuate in an inverse relationship; a falling off in imports resulting in a better price for, and consequently in a better supply of home produce. Many butchers purchase direct from the abattoirs at Woodside, and this circumstance also goes to explain the decrease of importations into Liverpool.

It is, however, in regard to pigs that the alteration is most remarkable.

There has been an increase of over 5,000 in the number slaughtered within the city, but instead of any coincidental falling off in the carcasses imported for sale, this number has actually increased nearly 30,000, the imports being nearly five times as large as they were in the preceding year, viz., 36,227, against 7,657.

This branch of trade may be regarded as an entirely new one.

STREET.	Beasts.	Sheep.	Lambs.	Calves	Pigs.	Dead Meat Imported for Sale.			
						Beasts.	Sheep.	Pigs.	Calves.
Abattoir.	5593	168320	—	13122	48972	50396	402160	36221	920
Back Butler Street	32	67	14	12	...	...	...	...	...
Back Castle Street	883	164	6	247	11	21	...	1	...
Back Mount Vernon Green...	444	3566	147	16	...	...	...	...	...
Cotter Street	129	39	2	56	2204	...	...	...	...
Corlett Street	36	1471	333	3	2	...	...	...	...
Crown Street ... ..	...	...	...	6	...	...	...	...	...
Darnley Street ... ..	...	...	...	...	1794	...	...	...	...
Edgeware Street	8	174	...	...	...	...	...	...	...
Foley Street ... ..	...	...	...	...	6969	...	...	...	...
Peel Street	36	425	5	1	69	...	...	...	...
Bevington Hill	1210	99	5	966	49	66	...	5	...
Carried forward	2778	6005	512	1307	11098	87	...	6	...

RETURNS OF ANIMALS KILLED IN THE CITY SLAUGHTER HOUSES
AND OF MEAT IMPORTED FOR SALE—*Continued.*

STREET.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.	Dead Meat Imported for Sale.			
						Beasts.	Sheep.	Pigs.	Calves.
Brought forward ...	2778	6005	512	1307	11098	87	...	6	...
Byrom Street... ..	...	...	...	...	347	...	...	...	...
Bolton Street... ..	48	3588	649	14	...	...	...	...	...
Back Commutation Row	202	1178	256	...	...	...	...	...	...
Copperas Hill.....	...	...	...	...	8463	...	...	...	...
Fineh Place	71	1950	504	3	...	...	...	...	...
Frederiek Street.....	32	72	53	...	13	...	...	...	...
Norman Street .....	...	...	...	...	2739	...	...	...	...
Norfolk Street	17	789	171	...	53	...	...	...	...
Soho Street.....	...	...	...	...	1661	...	...	...	...
Upper Milk Street.....	...	...	...	...	7292	...	...	...	...
West Derby Road, W. Derby	209	1663	254	7	61	...	...	...	...
„ Village „	...	...	...	...	...	...	...	...	...
Town Row .....	...	41	...	...	6	...	...	...	...
Preseot Road, Knotty Ash ...	4	489	197	11	56	...	...	...	...
101, High Street, Wavertree..	5	52	3	4	8	...	...	...	...
105, „ „	81	306	128	11	53	...	...	...	...
Sandown Lane	7	560	54	5	32	...	...	...	...
Derby Lane, Old Swan.....	...	698	227	1	3	...	...	...	...
Allerton Road, Wavertree ...	716	4617	879	80	85	...	...	...	...
Total in Private Slaughter-houses	4170	22008	3887	1443	31970	87	...	6	...
Total in the City	9763	190328	3887	14565	80942	50483	402160	36227	920

PRECEDING YEAR.

Total in Private Slaughter-houses	3667	21579	7217	1326	34346	113	...	...	5
Total in the City	6876	173584	7217	14246	75587	51875	442922	7657	846

UNWHOLESOME MEAT, FISH, &c., SEIZED AND DESTROYED.

DATE.—1899.		Beef.	Veal	Mutton.	Pork.	Poultry.	Rabbits and Hares.	Fish.	Shell fish.	Oysters.	Miscellaneous.
		Lbs.	Lbs.	Lbs.	Lbs.	Head		Lbs.	Bags		
MARKETS.	St. John's	743	...	456	...	967	609	64868	103	.	56 lbs. Grapes. 373 „ Tomatoes. 370 „ Apples. 157 „ Venison. 15 „ Oranges. 25 „ Cherries. 10 „ Plums.
	St. Martin's	60	...	140	83	...	...	...	...	...	...
SLAUGHTER-HOUSES.	Abattoir	109958	8567	20581	24087	...	...	...	...	...	...
	Back Castle Street ..	35884	3061	150	...	...	...	...	...	...	...
	Bevington Hill	35710	3339	200	40	...	...	...	...	...	...
	Copperas Hill .....	...	...	...	2534	...	...	...	...	...	...
	Norman Street .....	...	...	...	2557	...	...	...	...	...	...
	Soho Street .....	...	...	...	180	...	...	...	...	...	...
	Back Mount) Vernon Green)	16	...	...	...	...	...	...	...	...	...
	Brownlow Hill .....	...	...	...	...	...	...	...	...	.	50 lbs. Lemons. 20 „ Oranges. 60 „ Venison.
	County Road.....	70	...	...	...	...	...	...	...	...	...
	Dawson Street .....	...	...	...	...	88	...	...	...	...	...
	Falkner Street	40	...	...	...	...	...	...	...	...	...
	Farnworth Street ...	32	...	...	...	...	...	...	...	...	...
	Foley Street .....	...	...	...	429	...	...	...	...	...	...
	Fonthill Road .....	...	...	...	...	...	4	...	...	...	...
	Fox Street	112	...	...	...	...	...	...	...	...	...
	Gill Street .....	...	...	...	140	...	...	...	...	...	...
	Granby Street	70	...	...	...	...	...	...	...	...	...
	Great Charlotte Street	...	...	...	...	...	...	2991	...	...	...
	Great George Street ..	...	40	...	...	...	...	...	...	...	...
Carried forward...		182695	15007	21527	30050	1055	613	67859	103	—	

UNWHOLESOME MEAT, FISH, &c., SEIZED AND DESTROYED.—*Continued.*

DATE. — 1899.	Beef.	Veal.	Mutton.	Pork.	Poultry.	Rabbits and Hares	Fish.	Shell fish.	Oysters.	Miscellaneous.
	Lbs.	Lbs.	Lbs.	Lbs.	Head		Lbs.	Bags		
Brought forward ...	182695	15007	21527	30050	1055	613	67859	103	—	
Great Homer Street ..	680	112	...	510	...	...	...	...	...	40 lbs. Black-berries.
Great Nelson Street...	...	...	...	...	...	...	...	...	...	120 lbs. Plums.
Limekiln Lane .....	...	...	...	15	...	...	...	...	...	...
Lime Street .....	...	...	...	100	...	...	600	...	...	...
Manesty Lane .....	...	...	...	...	...	...	18	...	...	...
Mill Street.....	448	...	...	...	...	...	...	...	...	10 lbs. Currants, Apples, &c.
Mount Vernon Street.	112	...	...	...	...	...	...	...	...	...
Norfolk Street .....	...	...	209	...	...	...	...	...	...	...
North Haymarket ...	...	...	...	...	...	...	...	...	...	1176 lbs. Chesnuts 13640 „ Oranges. 5800 „ Onions. 16051 „ Tomatoes 94 „ Black Currants. 756 „ Red Currants. 80 „ Melons. 1380 „ Bananas. 4686 „ Pears. 150 „ Grapes. 1612 „ Apples.
Paddington	80	...	...	...	...	...	...	...	...	...
Park Road.....	...	...	...	...	...	...	...	...	...	150 lbs. Oranges.
Pitt Street.....	...	...	...	...	...	...	2860	...	...	...
Queen's Square .....	...	...	...	...	...	...	...	...	...	600 lbs. Garlic.
Richmond Row	4	...	...	...	...	...	...	...	...	...
Roe Street .....	...	...	...	...	785	90	39635	...	...	522 lbs. Apples.
Scotland Road	380	60	2100	130	...	...	...	...	...	50 Eggs.
St. James' Place .....	...	...	62	...	...	...	...	...	...	...
Stanley Street .....	...	...	...	2800	...	...	...	...	...	2592 lbs. Tomatoes 840 „ Bananas
Stanley Road .....	...	350	...	140	...	...	...	...	...	...
Carried forward...	184399	15529	23898	23745	1840	703	110972	103	—	

UNWHOLESOME MEAT, FISH, &c., SEIZED AND DESTROYED.—*Continued.*

DATE.—1899.	Beef.	Veal.	Mutton.	Pork.	Poultry.	Rabbits and Hares.	Fish.	Shell-Fish.	Oysters.	Miscellaneous.
	Lbs.	Lbs.	Lbs.	Lbs.	Head		Lbs.	Bags.		
Brought forward...	184399	15529	23898	23745	1840	703	110972	103	—	
Upper Milk Street ...	...	...	...	155	...	...	...	...	...	...
Upper Warwick Street	45	...	...	...	...	...	...	...	...	...
William Henry Street	1596	...	2320	500	...	...	...	...	...	...
Waterloo Dock	448	...	...	...	...	...	...	...	...	...
Westminster Road ...	...	...	...	...	...	2	...	...	...	...
Total	186488	15529	26218	34400	1840	705	110972	103	—	

The total amount of Meat and Fish found to be unfit for human food is equivalent to—

			Tons.	Cwts.	Qrs.	Lbs.
Meat	...	...	117	4	3	18
Fish	...	...	49	10	3	8

and this does not include Fish removed as refuse by Officers of the Cleansing and Scavenging Department under the City Engineer.

The total amount of unwholesome meat which has been seized and destroyed during the year amounts to upwards of 117 tons.

The great bulk of this meat was not exposed for sale, and did not require a Justices' order for its destruction.

The quantity of fish seized, amounting to nearly 50 tons, is considerably less than the amount taken last year, and includes both fresh fish and salt fish which had become tainted during transit or storage, a regrettable waste of food.

ANIMALS SMOTHERED AND INJURED IN TRANSIT ON BOARD SHIP.

Beasts.	Sheep.	Pigs.	Number found good.	Number found bad.	Weight of bad in pounds.
40	167	191	256	142	20,317

The Animals (Transit and General) Order compels the master of the vessel to slaughter all seriously-injured animals forthwith. Such animals are slaughtered on board the vessel, and the carcasses removed to the abattoirs.

Police proceedings in respect to meat and fish and fruit were as follows :—

	<u>1898.</u>		<u>1899.</u>
Number of informations in respect to Diseased Meat	3	} 7	9
" " " Fish	4		4
" " " Fruit	—		17
" Fined	7		19
" Sent to Gaol	—		—
Amount of Fines and Costs	£13 19 6 | £119 9 0		

	<u>1898.</u>	<u>1899.</u>
Number of carcasses seized during the year by Medical Officer of Health and Inspectors under section 116 of the Public Health Act	1,178	1,162
		{ 296 Cattle { 219 Calves { 444 Sheep { 203 Pigs.

*Number of such carcasses condemned by Justices under section 117 of the Public Health Act

Number of carcasses so seized in consequence of the animal having suffered from Tuberculosis
--	----	-----	-----	-----	-----

Amount of Fines and Costs£5	9	6		£2	0	0
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REMOVING PIGS WITHOUT A DECLARATION.

					<u>1898.</u>					<u>1899.</u>
Number of Informations	6					2
Amount of Fines and Costs	...	...	...	...	£6	2	0	£2	9	0

*The remainder were dealt with under a Local Act, which does not require a Justices' Order.

GLANDERS AND FARCY.

The Diseases of Animals Acts and the Order and Regulations made thereunder have been referred by the Health Committee to the Medical Officer of Health to carry out, in conjunction with the Veterinary Inspector and Sanitary Staff.

Prior to the passing of the Diseases of Animals Act, and the Glanders and Farcy Order of 1894, the record of the number of cases of glanders occurring in the city is wholly unreliable. The number of cases reported during each of the three years preceding the Order is as follows:—

1893	...	2 cases.
1894	...	3 „
1895	...	1 case.

Early in 1896, under the principal Act, and the Glanders and Farcy Order, the Health Committee made regulations which were circulated amongst horsekeepers, together with a notice indicating general precautions against glanders.

The number of cases of glanders which were brought to light during each of the four years, 1896, 7, 8 and 9, is as follows:—

CASES.				
1896	...	40	...	5 brought into the city from outside.
1897	...	18	...	2 „ „ „
1898	...	9	...	1 „ „ „
1899	...	20	...	4 „ „ „

In giving effect to the Act the following procedure is usually adopted:—

Information of actual or suspected disease is usually received, under the terms of the Order

(A) from the owner;

(B) from the Police;

(C) from the proprietor of the registered knacker's yard.
(There is only one in the city.)

Immediately upon receipt of such information, or as speedily thereafter as possible, the Veterinary Surgeon examines the animal, and if he finds it to be infected with glanders he certifies accordingly. The horse is slaughtered on the premises where it is found, and the carcase, head-stall, clothing, &c., removed in the knacker's cart in charge of an inspector appointed under the Act, a member of the staff of the Medical Officer of Health, to the knacker's yard, Holme Street, where, if necessary, a post-mortem examination is made.

The inspector attends to see that the carcase is destroyed. Carbolic acid is poured over the carcase, which is subsequently placed in a digester, with a certain amount of carbolic acid, and destroyed by boiling. The knacker's cart is thoroughly washed and cleansed in the inspector's presence.

In the meantime, another inspector, also similarly appointed, visits the premises, immediately notice is received of the existence of glanders in any place in the city, for the purpose of supervising the disinfection and cleansing of the stables and manure. All fodder and litter that have been in contact with the diseased animal, or in the stall adjoining, are removed and placed in the middenstead, and a quantity of quicklime is thrown over the manure, after which a quantity of carbolic acid and water is thrown over the lime.

A certificate is then signed in accordance with Article 12 of the Glanders Order, for the removal of the manure. The parts of the stable from which the horse has been removed are washed with hot water, and disinfected by hot limewashing, with limewash mixed with carbolic acid. The Veterinary Surgeon, after this has been done, gives a certificate certifying that the stable has been thoroughly cleansed and disinfected in accordance with the requirements of Article 10, Regulation C.

Powers are wanted in regard to the detention and supervision of animals which have been in contact with diseased animals, and it is most desirable that the owners of animals which have been so exposed should be prohibited from parting with them or selling them, excepting under such conditions as would enable them to be traced and kept under observation.

It is most necessary that the notification of glanders by Veterinary Surgeons should be made compulsory.

Power to mallein suspected horses under suitable regulations, and to separate all horses which react, is necessary; also power to keep them under observation.

Further control over infected stables is desirable, and the committee have endeavoured to obtain the necessary parliamentary powers, but the proposed clauses relating to glanders were withdrawn from the Corporation Bill.

Veterinary examinations, by request of Board of Agriculture, of horses imported from the American Continent.

Horses Examined.	Horses found affected with		
	Glanders.	Pneumonia.	Strangles.
7,527	...	420	125

In addition to those referred to in the foregoing table, 14,159 horses, some of which were landed beyond the city boundaries, have been examined and re-examined at the various sale yards, with a view to the maintenance of the general health of the animals in the city.

The imported animals were on the whole in a very good condition, and the mortality small; and no evidence of contagious disease was found.

The number of cases of Glanders detected in 1899 shows a very considerable increase on those for 1898, and as compared with former years it is still large. Glanders and Farcy have been found to exist on 12 premises, 17 reports of suspicious cases were received, 176 animals were examined. Of these 18 were condemned and destroyed as being affected with Glanders and Farcy, and 2 died. Compensation was paid to the owners of 12 animals destroyed by order of the Local Authority, the remainder (6) being slaughtered by order of the owners.

Animals Examined.	Affected.	Suspicious.	Not Affected.
176	20	7	149

Total Number of Animals in Stables, &c., where the Disease occurred.	SLAUGHTERED.		Died.
	By Order of Owner.	By Order of Local Authority.	
116	6*	12	°2

* Of these 3 were brought into city from beyond the city boundaries, viz., 1 from Orrell and 2 from Aintree.

° One from outside the city boundary, viz., Aughton. The carcase of the other was found at the knacker's yard.

LUNGS OF HORSES EXAMINED AT KNACKER'S YARD, HOLME STREET,
SANDHILLS.

During the year 1899, the Veterinary Superintendent has caused to be examined the lungs of all horses sent to the above premises. In every instance where there was evidence of the disease manifested in the lungs, the owners of the animals were notified, and if within the city boundaries, the remainder of their studs were subjected to veterinary examination. In cases where the existence of Glanders or Farcy is capable of detection during the life of the animal, proceedings are taken against the responsible persons. Of the total number of lungs examined, one was taken from a horse that was brought into the city from outside the city boundary, and found to be affected.

Lungs Examined.	Glandered.	Not Affected.
2,824	9	2,815

ANTHRAX.

On 2nd May, 1899, a cow was brought by the Liverpool Horse Slaughtering Company to their yard from Allerton, and reported by them to the Veterinary Inspector as a suspicious case of Anthrax. On examination it was found that it had died from the disease. The carcase was condemned and destroyed.

PLEURO-PNEUMONIA.

There was no case reported during the year.

RABIES.

In conformity with the requirements of the Board of Agriculture, reports were sent to the Board in respect to eight suspected cases of rabies.

Post mortem examinations were made by the Veterinary Inspectors during the year on eight dogs, none of which shewed signs of having been affected with rabies.

SHEEP SCAB.

On 4th September the Veterinary Inspector, when visiting Stanley Cattle Market, found two sheep affected with Sheep Scab. They, along with six others which had been in contact, were removed to the Liverpool Abattoir, and there slaughtered by order of the owner.

SWINE FEVER.

The following table shows the number of animals affected with swine fever and the number in the herds slaughtered under the Swine Fever Order.

Total Number in Herds.	HEALTHY		DISEASED.		Died.	Locality.	Remarks.
	Slaughtered.		Slaughtered.				
	By Order of Owner.	By Order of Board of Agriculture.	By Order of Owner.	By Order of Board of Agriculture.			
1	...	...	...	...	1	Fulwood Park.	
3	...	...	...	2	1	Greenbank.	
31	28	...	...	...	3	Liverpool Abattoir.	
2	...	1	...	1	...	Aigburth Road.	
110	79	11	...	...	8	Melling Road.	12 remained healthy when premises were ultimately declared free.
84	...	1	...	...	1	Walton Workhouse.	82 remained healthy when premises were ultimately declared free.
12	6	...	2	3	1	Broad Green Road.	

<u>PIGGERIES.</u>						<u>1898.</u>	<u>1899.</u>
Number of applications to keep pigs	...	..				6	4
„ „ granted	...	...	...			2	3
„ „ refused	...	...	...			2	Nil.
„ „ in abeyance	...	..				2	1
Pigs applied for	...	...	...	...	...	49	87
„ granted	...	...	...	...	..	18	62
Total number of licensed piggeries...	...	...				25	31
„ pigs	...	...	...	...	...	412	474
Number of visits to piggeries	...	...	...			...	120
„ Informations	...	.	...	..	...	...	2
„ Fined	...	...	...	...	...	..	1
Amount of Fines and Costs	...	...	...	..		£5	4 6

DAIRIES, COWSHEDS AND MILKSHOPS.

The method of procedure with respect to the licensing of cowsheds and the registration of dairies, milkshops, and milk-stores was described in last year's report.

Statistics respecting Cowsheds:—

						<u>1899.</u>
Number of applications to keep cows on premises not previously licensed	..	...	...	...		4
„ „ granted	...	...	...	...	...	1
„ „ in abeyance, pending alterations...				...	...	1
„ cows applied for on above applications	...	...	...	...	...	59
Number granted...	...	...	...	...	...	19

Number of applications standing over from 1898	...	...	...	...	19
„ „ now granted	..	...	...	...	19
„ applications for transfer to fresh tenants of cowsheds previously licensed	...	...	...	...	73
„ „ now granted	...	...	...	...	64
„ „ in abeyance, pending alterations...	...	...	...	...	9
„ applications to keep more cows than the number for which the license was originally issued	...	...	...	...	19
„ „ granted	..	...	...	...	16
„ „ in abeyance...	...	...	...	...	3
„ additional cows applied for	.	...	..	..	59
„ „ granted	...	...	..	...	51
„ Cowsheds existing within the City during 1898	...	...	...	...	435
„ „ now existing	...	...	...	..	434

NOTE.—During the year five old cowsheds have become disused and four new cowsheds erected.

Number of cows licensed to be kept within the city area ... 5,851

COWSHED INSPECTION.

During the year systematic inspection of cowsheds has been carried out entirely by the Cowshed Inspectors, the alteration of cowsheds being now complete.

					<u>1898.</u>	<u>1899.</u>
					By District Staff.	By Cowshed Inspectors.
Number of Inspections of Cowsheds	...	...	...	...	3,872	4,116
„ found Incorrect	..	...	...	..	334	210
„ Informations	...	...	...	...	9	12
„ Fined	...	...	...	..	8	11
Amount of Fines and Costs	...	...	...	...	£8 9 0	| £23 19 6

During the year it has been found necessary to issue 148 caution notices for contravention of the regulations.

Number of cowsheds in the city during the years 1890 to 1899 inclusive, together with the number of cows licensed to be kept, and the number of applications for new cowsheds, is as follows:—

		Cowsheds.		Cows.		Applications.
1890	...	378	..	5,104	.	2
1891	...	380	...	4,950	...	1
1892	...	337	...	4,539	...	6
1893	...	344	...	4,634	...	4
1894	...	304	...	4,005	...	2
1895	...	325	...	4,311	...	20
1896	...	404	...	5,393	...	129
1897	...	453	...	5,650	...	33
1898	..	435	...	5,695	..	13
1899	...	434	...	5,851	...	2

MILKSHOPS.

Number of Applications for registration	...	...	...	...	151
of which transfers were	.	...	...	...	123
,, above Applications granted	...	...	...	...	129
,, ,, ,, refused	..	...	...	..	6
,, ,, ,, in abeyance	...	...	...	...	16

Twenty applications which were standing over at the close of last year have been granted.

Number of Milkshops on the register at the end of 1896	...	...	909
,, ,, ,, ,, 1897	...	...	988
,, ,, ,, ,, 1898	...	...	892
,, ,, ,, ,, 1899	...	...	830

During the year it was found necessary in 90 instances to issue caution notices for contravention of the regulations.

DAIRIES AND MILKSHOPS INSPECTION.

	<u>1898.</u>	<u>1899.</u>
	By District Staff.	By Dairies Inspectors.
Number of Inspections of Dairies and Milkshops	6,084	6,283
,, found incorrect	1,154	443
,, of Informations	6	11
,, Fined	6	11
Amount of Fines and Costs	£8 17 0	£21 14 6

During the year sixteen cases of infectious sickness have occurred on dairy premises; but no case of infectious disease reported on other premises has been traceable to the milk supplied from these dairies.

LEAVELOOKERS' VISITS TO SHIPPONS FOR THE PURPOSE OF
EXAMINING COWS.

No. of Visits.	No. of Examinations of Cows.	No. found Healthy.	No. found ill and referred to the Veterinary Inspector.
2,218	26,935	26,890	45

ICE CREAM MAKERS AND VENDORS.

Section 32 of the Liverpool Corporation Act, 1898, contains provisions for regulating the manufacture, storage and sale of ice cream, and for the protection of the same against contamination.

During the year the premises occupied by makers and vendors of ice cream have been systematically visited; attention has been paid to the general sanitary conditions of same, habits of the people, cleanliness of vessels, and any conditions or circumstances existing likely to cause contamination of the ice cream.

Street traders of this commodity have received special attention. The majority of these now make use of specially adapted premises for the manufacture and storage of ice cream, instead of, as was formerly the case, making and storing this commodity in or about their dwellings.

						<u>1898.</u>	<u>1899.</u>
Number of premises under Inspection	...	...	...	...	...	251	347
„ visits made	...	...	...	...	...	1,687	1,848
„ caution notices issued	...	...	...	...	...	...	23
„ Informations	...	...	...	...	...	...	3
„ Fined	...	...	...	...	...	...	2
<hr/>							
Amount of Fines and Costs	...	...	...	...	...	...	£3 9 0

The Milk Supply of the City was dealt with in considerable detail in the last Annual Report.

It was pointed out that milk is the only perfect and natural food up to six months of age. Given in the natural manner, viz., direct from the gland to the stomach of the infant, it is taken absolutely fresh, at the natural temperature, perfectly mixed, and without exposure to the air; it contains neither adulterant nor preservative, there has been no skimming of the cream, no possibility of contamination with dirt or specific disease, and no fermentation. The milk is, in fact, bacteriologically, pure and clean, and the advantage to the infant fed in this natural manner is very great.

On the other hand, the milk of commerce, even if it comes from a healthy animal—which is too often open to doubt—is exposed to risks of contamination in many ways, from dirty udders and dirty hands of milkers, from exposure in the open buckets in dirty shippens, from strainers, pails, milkcans, and jugs, to which it must be transferred on its way to the table of the consumer, and, if it is neither skimmed nor watered, yet, after its railway journey, and after being hawked from door to door through dusty streets, it arrives in a varying degree of staleness, more or less contaminated, and loaded with microbes of various kinds, and sometimes of extreme virulence.

The aim in view in regard to cows' milk is to imitate the natural condition as closely as possible, that is, to ensure not only that the supply shall be free from intentional adulteration, which relatively is but a minor point, but that it shall be as free from contamination, or accidental or wilful impurity, as Nature intends.

Additional legislation, with a view still further to ensure the attainment of these objects, was promoted during the year.

About one-half of the quantity of milk supplied to the City of Liverpool comes in by rail from the country. About 11,500 gallons are brought in every day from the country, and about 12,000 gallons are produced every day from cows kept within the city. There are 434 shippens within the city, licensed for keeping 5,851 cows, the license being subject to annual renewal, and there are 830 places within the city registered for the sale of milk.

The actual supervision and administration of cowsheds and dairies engages the personal attention of the Medical Officer and his Deputy, the details being in the hands of a competent staff. The structural and general sanitary condition of the shippens is dealt with by two suitably qualified inspectors, who give their whole time and undivided attention to this work. They are not only prepared to advise in regard to any new shippen, but their business is systematically to inspect those already licensed. The cowsheds in Liverpool, no doubt, in some instances, may leave something to be desired; many, however, are as good as are to be found in this country, and the average is up to a very good standard.

The cows themselves are carefully and systematically examined by the Leavelockers. These men, five in number, are qualified by experience and training for the work, and they examine on an average about 500 cows every week. Any cow which is found to be out of health is at once reported to the Medical Officer, and, if necessary, the Veterinary Superintendent, Mr. Reynolds, or his Deputy, examines the animal, and applies the tuberculin test if it is thought desirable to do so.

The arrangements, on the whole, are very complete, so far as city cowsheds are concerned, and some supervision will be exercised by the officers of the Health Committee over those country cowsheds which supply milk to the city, when contemplated powers are obtained. Provision for more open space surrounding shippens, and for greater

yard space in connection with them, is wanted, and there can be no doubt at all that the hands of the authorities ought to be strengthened to enable them to deal with cowkeepers who place obstacles in the way of the removal of diseased animals from their shippens.

Early in the year, the Local Government Board scheduled tubercular disease of the udder of cows as a "disease" under the Dairies, Cowsheds and Milkshops Order. This has the effect of prohibiting under a penalty, the use for human food of the milk from cows so diseased.

When the udder of the cow is affected with tuberculosis the tubercle bacilli, which are breeding there, flow away with the milk, and, still retaining all their activity and virulence, may enter the stomach and so infect with tuberculosis the person consuming the milk.

Cowkeepers realise that the best policy is to aim at the root of the evil, and (1st) to have the shippens so well constructed and kept that the cows shall remain under conditions most favourable to health; and (2nd) to have them examined from time to time, at appropriate intervals, in order to ascertain that they remain healthy.

An additional safeguard, which is in the power of everybody, is to boil the milk for a few seconds, or to sterilise it by raising it to a temperature somewhat below boiling point, either of which would effectually destroy all tubercle bacilli.

The sterilisation can be accomplished if the vessel containing the milk is placed in a sauce-pan or other suitable vessel containing water, which can be heated to boiling.

The total number of samples of milk examined during the year was 352, 185 being samples taken from the railway stations, on arrival from the country, and 167 from the town. Of the 167 town samples 1 was proved to contain the tubercle bacillus, and of the 185 railway samples 15 were shown to contain the tubercle bacillus. These proportions of tubercular milk are in excess of the average. (See page 149.)

In contrasting the relative purity of town and country supplies, it is satisfactory to find that adulteration is not frequent in either case. In both town and country milk, however, adulteration with water is found a little more frequently in samples taken on Sundays than on other days. In regard to the presence of tubercle bacillus, a most important difference is found. It would naturally be thought that, with the very

great natural advantages which the country possesses, tubercle would be less frequent in the country than it is in the town. This, however, is very far from being the case, and it is a most serious reflection upon the sanitation of country shippons that tubercle is found more than twice as often in samples from the country as it is in samples from the town; thus, out of a complete total of 479 town samples, 20, or 4·1 per cent., were found to be infected with tubercle, but out of a complete total of 280 samples taken at the railway stations on arrival from the country, 29, or 10·3 per cent., were found to be infected. This shows the great need for sanitation of country shippons, and shows the consumer that he should take town milk when he can get it, rather than that sent in from the country, where little or no supervision is exercised.

PROVISIONS AS TO MILK SUPPLY.

In November the Health Committee resolved that in the next application to Parliament powers should be sought to enable the corporation to prevent the sale or use of milk within the city from cows suffering from tuberculosis. The following important provisions as to milk supply were included in the draft Bill:—

Clause 17.—Every person who knowingly sells or suffers to be sold or used for human consumption within the city the milk of any cow which is suffering from tuberculosis of the udder shall be liable to a penalty not exceeding ten pounds.

18.—Any person the milk of the cows in whose dairy is sold or suffered to be sold or used for human consumption within the city who after becoming aware that any cow in his dairy is suffering from tuberculosis of the udder keeps or permits to be kept such cow in any field shed or other premises along with other cows in milk shall be liable to a penalty not exceeding five pounds.

19.—Every dairyman who supplies milk within the city and has in his dairy any cow affected with or suspected of or exhibiting signs of tuberculosis of the udder shall forthwith give written notice of the fact to the medical officer stating his name and address and the situation of the dairy or premises where the cow is.

Any dairyman failing to give such notice shall be liable to a penalty not exceeding forty shillings.

20.—(1) It shall be lawful for the medical officer or any person provided with and if required exhibiting the authority in writing of such medical officer to take within the City for examination samples of milk produced or sold or intended for sale within the city.

(2) The like powers in all respects may be exercised outside the city by the medical officer or such authorized person if he shall first have obtained from a justice having jurisdiction in the place where the sample is to be taken an order authorizing the taking of samples of the milk, which order any such justice is hereby empowered to make.

21.—(1) If milk from a dairy situate within the city is being sold or suffered to be sold or used within the city the medical officer or any person provided with and if required exhibiting the authority in writing of the medical officer may if accompanied by a properly qualified veterinary surgeon at all reasonable hours enter the dairy and inspect the cows kept therein; and if the medical officer or such person has reason to suspect that any cow in the dairy is suffering from tuberculosis of the udder he may require the cow to be milked in his presence and may take samples of the milk, and the milk from any particular teat shall if he so requires be kept separate, and separate samples thereof be furnished.

(2) If the medical officer is of opinion that tuberculosis is caused or is likely to be caused to persons residing in the city from consumption of the milk supplied from a dairy situate within the city or from any cow kept therein he shall report thereon to the corporation and his report shall be accompanied by any report furnished to him by the veterinary surgeon, and the corporation may thereupon serve on the dairyman notice to appear before them within such time not less than twenty-four hours as may be specified in the notice to show cause why an order should not be made requiring him not to supply any milk from such dairy within the city until the order has been withdrawn by the corporation.

(3) If the medical officer has reason to believe that milk from any dairy situate outside the city from which milk is being sold or suffered to be sold or used within the city is likely to cause tuberculosis in persons residing within the city the powers conferred by this section may in all respects be exercised in the case of such dairy provided that the medical officer or other authorized person shall first have

obtained from a justice having jurisdiction in the place where the dairy is situate an order authorizing such entry and inspection, which order any such justice is hereby empowered to make.

(4) Every dairyman and the persons in his employment shall render such reasonable assistance to the medical officer or such authorized person or veterinary surgeon as aforesaid as may be required by such medical officer person or veterinary surgeon for all or any of the purposes of this section and any person refusing such assistance or obstructing such medical officer person or veterinary surgeon in carrying out the purposes of this section shall be liable to a penalty not exceeding five pounds.

(5) If in their opinion the dairyman fails to show cause why such an order may not be made as aforesaid the corporation may make the said order and shall forthwith serve notice of the facts on the county council of any administrative county in which the dairy is situate and on the Local Government Board, and if the dairy is situate outside the city on the council of the borough or county district in which it is situate.

(6) The said order shall be forthwith withdrawn on the corporation or their medical officer being satisfied that the milk supply has been changed or that is not likely to cause tuberculosis to persons residing in the city.

(7) If any person after any such order has been made supplies any milk within the city in contravention of the order or sells it for consumption therein he shall be liable to a penalty not exceeding five pounds and if the offence continues to a further penalty not exceeding forty shillings for every day during which the offence continues.

(8) A dairyman shall not be liable to an action for breach of contract if the breach be due to an order under this Part of this Act.

(9) The corporation shall cause to be given public notice of the effect of the provisions of this section by advertisement in local newspapers and by handbills and otherwise in such manner as they think sufficient, and this section shall come into operation at such time not being less than one month after the first publication of such an advertisement as aforesaid as the corporation may fix.

22.—Offences under this Part of this Act may be prosecuted and penalties may be recovered by the corporation before a petty sessional court having jurisdiction in the place where the dairy is situate or the offence is committed and not otherwise.

PROCEEDINGS UNDER THE FOOD AND DRUGS
AND MARGARINE ACTS.

All samples of food or drugs are taken either by, or under the superintendence of Inspectors of the Health Department. It is of the greatest consequence that trained and practised persons should be employed for this purpose. It is necessary from time to time to employ women or young lads as agents, to go into the shop to ask for the articles, and as soon as the agent receives them, the Inspector enters the shop and completes the formalities which the Act requires. The following is a list of the

SAMPLES TAKEN FOR CHEMICAL ANALYSIS.

No of Samples purchased.	Description of Samples.	Adulterated.	Informations.
3	Aerated Waters ... ..	...	...
24	Arrowroot ... ..	...	...
1	Baking Powder	1	...
2	Beer ... ..	...	...
2	Bitter Beer ... ..	...	...
1	Bi-lemonade ... ..	...	...
12	Bread ... ..	...	...
31	Butter... ..	2	2
3	Camphorated Oil	2	2
8	Carbonate of Soda ... ..	...	...
4	Carraway Seeds ... ..	...	...
2	Cassia ... ..	...	...
1	Cerebos Salt ... ..	...	...
37	Cheesc... ..	1	1
1	Chicory ... ..	...	...
5	Chocolate ... ..	...	...
2	Cinnamon ... ..	...	...

SAMPLES TAKEN FOR CHEMICAL ANALYSIS—CONTINUED.

No. of Samples purchased.	Description of Samples.	Adulterated.	Informations.
5	Cocoa ... ..	...	...
30	Coffee	2	2
3	Coffee and Chicory ... ..	...	...
10	Cornflour ... ..	...	...
4	Cream	2	...
2	Cloves ... ..	...	...
17	Cream of Tartar ... ..	...	...
1	Dandelion and Burdock Stout ...	...	...
2	Desiccated Egg Food ... ..	...	...
2	Desiccated Soup ... ..	...	...
25	Flour ... ..	...	...
9	Flour, Self-raising	1	...
3	Flour, Wheaten ... ..	...	...
3	Gin ... ..	...	...
43	Ginger (Ground and Whole) ...	1	...
1	Glycerine ... ..	...	...
19	Golden Syrup	14	9
1	Infants' Food ... ..	...	...
23	Jams ... ..	...	...
43	Lard ... ..	...	...
1	Lemon Squash ... ..	...	...
2	Mace ... ..	...	...
1	Malted Milk ... ..	...	...
3	Margarine	1	...
8	Marmalade ... ..	...	...
744	Milk (new)	111	80
103	Milk (skimmed)	13	9
19	Milk (separated)	3	...

SAMPLES TAKEN FOR CHEMICAL ANALYSIS—CONTINUED.

No. of Samples purchased.	Description of Samples.					Adulterated.	Informations.
18	Milk (condensed)	...	...	...	...	...	...
13	Mixed Spice	...	...	...	...	3	1
5	Mustard	...	...	...	...	...	...
7	Oatmeal	...	...	...	...	...	...
3	Oats, rolled	...	...	...	...	...	...
3	Olive Oil	...	...	...	...	...	...
4	Preserved Pineapple	...	...	...	...	...	...
3	„ Tomatoes	...	...	...	...	...	...
1	„ Plums	...	...	...	...	...	...
5	„ Peas	...	...	...	...	3	...
5	Pepper, cayenne	...	...	...	...	...	...
2	„ black	...	...	...	...	...	...
51	„ white	...	...	...	...	5	4
4	Piccalilli	...	...	...	...	...	...
8	Pickles	...	...	...	...	...	...
1	Plaster, Bella Donna	...	...	...	...	...	...
6	Rice	...	...	...	...	...	...
5	Rum	...	...	...	...	...	...
2	Stout	...	...	...	...	...	...
27	Sugar	...	...	...	...	...	...
1	Sweet Corn	...	...	...	...	...	...
23	Sweetmeats	...	...	...	...	...	...
5	Tartaric Acid	...	...	...	...	...	...
36	Tea	...	...	...	...	...	...
4	Treacle	...	...	...	...	...	...
3	Vinegar	...	...	...	...	...	...
3	Wine, Port	...	...	...	...	...	...
1	„ Sherry	...	...	...	...	...	...

SAMPLES TAKEN FOR CHEMICAL ANALYSIS—CONTINUED.

No of Samples purchased.	Description of Samples.	Adulterated	Informations.
3	Whisky, Irish ... ..	...	...
2	„ Scotch ... ..	...	...
2	Yeast ... ..	...	...
Total <u>1522</u>		165 <i>Adulterated.</i>	110
1233	preceding year.	143 preceding year.	

		<u>1898.</u>	<u>1899.</u>
Number of Informations	... ..	87	110
„ Fined	... ..	81	90
Acquitted or Withdrawn	... ..	6	20
Amount of Fines and Costs	... ..	£186 4 0	£250 7 0

DETAILS OF SAMPLES OF MILK OBTAINED FOR CHEMICAL ANALYSIS DURING THE YEAR 1899.

	<u>1898.</u>	<u>1899.</u>
Number of Samples purchased on Week-days in Town..	464	516
„ Informations	42	64
Number of Samples taken at Railway Stations on Week-days	146	127
„ Informations	11	1
Number of Samples purchased on Sundays in Town ...	76	145
„ Informations	9	20
Number of Samples taken at Railway Stations on Sundays	94	78
„ Informations	8	2

The amount of fines for offences under the Sale of Food and Drugs Act has considerably increased during the past twelve months as compared with the preceding twelve months, but the number of samples taken also shows a considerable increase.

PRESERVATIVES AND COLOURING MATTERS.

The importance of avoiding waste in regard to food stuffs of any kind does not need to be emphasised, but it is of greater importance to insure that the means taken to prevent waste are not calculated to injure health.

The preservation of meat, and other perishable foods, by means of cold is, as is well known, largely resorted to in this country. The successful application of cold as a preservative receives its best illustration in the case of the Copenhagen milk supply, into the details of which it is not now necessary to enter.

In this country the use of chemical preservatives is exceedingly common, and in the case of some very perishable articles, such as milk and cream, it is to be feared, takes the place of care and cleanliness.

It is established beyond dispute that chemical preservatives, whilst checking putrefactive changes in the food, may also check the fermentative processes of digestion.

Boracic acid or borates, as a preservative, is found in margarine, butter, ham, bacon, pork, fish, cream and milk. In margarine and butter, the use of it has been common for many years; it is usually more or less uniformly mixed with these articles, and about 30 grains to the pound have been found. It is also met with in sausages, pork pies, and pastry. An article sold as "Arcticanus Special Cream Compound" is a mixture of boracic acid, and borax.

Salicylic acid and salicylates are met with in jam, but the manufacturers appear to be *bonâ fidê* anxious to minimise the quantity; in the case of British wines, however, as well as in the case of some unfermented drinks, sometimes both boracic acid and salicylic acid have been found, and there are not evidences of the same care on the part of the manufacturers to limit the amount, the quantity varying from 7 grains to 150 grains of salicylic acid to the gallon, and 4 grains to 100 grains of boracic acid to the gallon.

It is perfectly plain that if it is absolutely necessary to add either of these drugs, and if 7 grains to the gallon is enough in one case, there is no necessity to throw in 150 grains to the gallon in another case.

In prosecutions which have been undertaken in regard to British wines, the defendants have actually had the effrontery to put forward the defence that the chemicals employed were useful as drugs, and they had actually induced medical men to go into the witness-box to prove to the court the value of these drugs when used medicinally, the evidence proving nothing more than that a dose of physic can be administered without injury in certain diseased conditions of the human frame; but the promiscuous administration of doses of physic of this character at meal times is known to have a very prejudicial effect, especially upon young infants.

The addition of formalin, or boracic acid, to milk, appears to be exceedingly uncommon in Liverpool, a growing tendency last year to the use of these materials in milk having been checked by a prosecution under the Food and Drugs Act.

It is abundantly plain that there can be no real necessity for the use of these drugs in milk; if it were a real necessity the sale of milk could not go on as it does, without their use. Of all articles in which the use of chemical preservatives is likely to be attended with mischief, milk is the most likely, and it is in this case that the use of preservatives is most indefensible. The experiments of Professor Boyce (see page 140) are sufficient to establish the dangers of the practice, even if they stood alone. There are numerous cases of injury resulting from the use of milk so preserved. One may be quoted:—Mrs. E. T. voluntarily offered her milk-dealer twice the price he asked, to send to her pure milk to be used for her infant. The double price, however, did not deter the dealer on one occasion from sending milk containing boracic acid preservative, the presence of which was immediately detected by its effect upon the child. The dealer made no secret of his action when taxed with it. In cases such as this the use of the preservative is distinctly toxic. Hence, if the use be allowed by law, the fact should be made known to the purchaser, since of all casual dangers to health, those arising from the use of poisons in food are the most difficult to defend one's self from.

COLOURING MATTERS.

Colouring matters seem to have two distinct uses in foods—in the one case, merely to give an attractive appearance to an article, but without imitating any other article, and in the other case, it is added to increase the resemblance of the article to that which it is intended to simulate.

The commonest colouring matter, which is usually used for sausages, especially German sausages, consists of a mixture of borax, red coal tar dye of the class known as sulphonated diazol, with a little salt or saltpetre, and sometimes ground rice or bread crumbs mixed with it. Armenian bole consists of oxide of iron with a siliceous matter.

The use of these colouring matters by no means necessarily implies fraudulent intent—purchasers might be supposed to know that no natural food stuff could have the remarkable colour of some German sausages; but there is another colouring matter which might, without injustice, be suspected of bordering upon the fraudulent, that is “Smokene.” This is a mixture of borax, salt, creosote, and red coal tar dye, which is used for brushing over hams, bacon, tongue, fish, &c., and which gives the article the appearance of having been perfectly and carefully smoked, the operation, like the name, being very ingenious. Amongst other common fraudulent colourings may be mentioned the use of burnt sugar with dilute acetic acid to resemble vinegar, and the use of glucose with a very common black treacle to imitate the brightness of golden syrup.

The dirt, or staleness of goods may be concealed by colouring matters, as, for example, dirty rice, used to make egg powders, coloured with a yellow coal tar dye which takes away the dirty appearance; similarly, stale milk coloured with a slightly yellow dye, gets a richer look. With regard to egg powders, which in reality are merely baking powders, these are coloured yellow and labelled “each packet equivalent to one egg.” Cases have actually come under notice in which the purchaser has believed that the packet did actually contain the equivalent in food of a desiccated egg, possibly the yellow colour completed the delusion.

It does not appear that the Food and Drugs Act, which is essentially framed on commercial lines, discountenances the use of colouring matters and preservatives, unless it can be proved that such ingredients are injurious to health.

Every person adding any colouring matter or preservative whatever, to articles of food, should state on a plain, simple and conspicuous label—

1. The material used.
2. The quantity used.
3. The date at which the material was added.

A form of label for supplying this information might be suggested.

Heat and cold as preservatives are exceedingly common, and many articles are now sold as sterile. An article sold as sterile ought certainly to be sterile; if it is not, it possesses the disadvantage of giving a false sense of security to the purchaser. But the sterility should not be secured by using chemicals.

In procuring samples with a view to obtaining information as to the extent to which any given preservative, colouring matter, or adulterant is used, it is of the utmost importance that persons trained in the procedure of obtaining samples should be employed; they, of course, can make use of the services of agents when necessary, but a case may be instanced in which a gentleman not conversant with the methods obtained a considerable number of samples, and on causing them to be analysed found all of them to contain the same preservative. Enquiry, however, showed that all these samples had been supplied from one and the same source.

PRESERVATIVES AND COLD.

Last year, chemical preservatives were substituted for cold to a very great extent in the case of imported pork. This pork is packed in small boxes of 50lb. each, which are placed in a refrigerator on board ship with other "chilled" meat, and kept at a temperature of 32 or 35 to 38 degrees. Previous to packing, it is treated in some way with boracic acid, which finds its way into the flesh. The reason for putting it in is to check accidental decomposition, which would result from any defect in the cooling process. If pork is frozen, it spoils the appearance and deteriorates the value; hence it can only be "chilled."

As illustrating the sudden increase of this trade last year, although the number of pigs slaughtered in the City was well maintained—in fact was considerably in excess of the previous year—the imports amounted

to no less than 29,000 more than in the preceding year, the total 36,227 being nearly five times as large as it was in the preceding year, when the trade appears to have commenced. Prior to that the carcasses of dead pigs imported did not exceed a few dozen annually, the trade being practically nil.

Another important aspect of the question of chemical preservatives arises in connection with the increasing demand for, and supply of, sterilised milk, more especially for infants, all over the country.

Formalin fortunately is not largely used by milk dealers as a preservative adulterant. About 1,500 samples of milk were chemically examined for the specific purpose of ascertaining if formalin was present, but it was only found in .8 per cent. of these samples.

Many of the firms supplying sterilised milk are not milk-producing firms, the milk being supplied by contract from wholesale milk-dealers.

It is obvious that if the milk-dealers have added chemical preservative to the milk sent to the sterilising companies, the greatest danger to the health of infants will be incurred. It is not reasonable to expect that the sterilising companies will systematically, day by day, cause analyses to be made to ascertain the presence of these preservatives; but their use should be altogether prohibited, and cleanliness and cold relied upon to ensure preservation of the milk.

The following special samples of home and imported goods were submitted during 1899 for special examination, in order to determine the character and amount of the preservative and colouring matter used.

SUMMARY.

Bacon	5	Meat Juice	1
Brawn	2	Pork Pie	2
Cheese	6	Port Wine	3
Chicken Broth	1	Arcticanus	1
Claret	1	Armenian Bole	1
Cocoa and Milk	1	Bi-Sulphite of Lime	1
Condensed Milk.....	2	Indian Red	1
Fruit Jelly	1	Meat Preservative	1
Ham.....	5	Poloney Dye	1
Jams.....	7	Rose Pink	1
Kidney Soup	1	Sausage Colouring.....	1
Meat Jelly	1	Smokeene	1

<u>MARGARINE ACT.</u>						<u>1898.</u>	<u>1899.</u>
Number of	Visits to	Shops	...	..	...	2350	5890
„	Samples obtained	...	...	...	...	10	16
„	„	Analysed	...	...	..	—	—
„	Informations	...	...	...	...	14	16
„	Fined	...	...	...	..	11	16
Amount of Fines and Costs						£30 8s.	| £27 8s.

<u>GIVING FALSE WARRANTY.</u>						<u>1898.</u>	<u>1899.</u>
Number of	Informations	...	..	...	...	—	5
„	Fined	...	...	..	...	—	2
Amount of Fine and Costs						—	£1 16s. 6d.

BACTERIOLOGICAL EXAMINATIONS AND ANALYSES.

The work of the Bacteriologist comprises :—

- (a) Examination of food stuffs of various kinds.
- (b) Regular examination of water supplied to the City.
- (c) Examinations into suspected cases of rabies, anthrax, glanders, &c.
- (d) Examination for diagnostic purposes in suspected cases of diphtheria, typhoid fever, tubercular sputum, &c.
- (e) Special investigations.

In the examination of food-stuffs the following general methods are employed :—

Samples of milk and samples of water are collected in sterilised bottles, and if they cannot be examined immediately they are kept in a refrigerating chamber.

Every food-stuff and every sample of water is analysed for the presence of (1) *bacillus coli*; (2) *bacillus enteritidis sporogenes*.

Every sample of milk, cream, butter, margarine and cheese is, in addition, examined for the presence of the *Bacillus tuberculosis* by inoculation.

In every sample of water the number of bacteria present in the cubic centimetre is also noted.

To facilitate these operations special apparatus has been constructed in the laboratory, and many of the operations have been simplified by their use.

Diphtheria and typhoid specimens are obtained by sterilised swabs or capillary tubes, which are sent to the medical men.

Amongst the more important special investigations during the year have been the following:

(1.) **Preservatives in Food.**—In view of the increasing use of preservatives of various kinds in food stuffs, and the difficulty which has been experienced in proving in courts of law the limit beyond which it was dangerous to extend their use, the Medical Officer requested Professor Boyce to undertake some exact experiments into the physiological action of boracic acid and formalin, as these, especially the latter, were found in foods likely to be used for infants and young children.

The examination consisted in feeding kittens of three weeks old upon milk containing minute but definite proportions of the preservatives in question, and the observations extended in each case over a period of from six to seven weeks. With regard to the boracic acid, (a) Five kittens were fed upon milk containing 10 grains to the pint. (b) Five kittens were fed upon milk containing 5 grains to the pint. (c) Five kittens were fed upon perfectly pure milk, the kind of food being the only difference in the treatment of the animals. In every case a supply of milk was always available for the kittens to lap.

Results. The group (a), fed with 10 grains of boracic acid to the pint, showed rapid emaciation, diarrhœa, and death resulted in from three to four weeks; the kittens treated with five grains showed results almost similar. The remaining five kittens fed with pure milk increased in weight and remained healthy.

With regard to the second series of milk, viz., that treated with formalin, the proportions of formalin, which is a very powerful anti-septic, were used as follows:—Five kittens were fed with milk containing 1 part in 50,000 of milk, five with 1 in 25,000 of milk, and five with 1 in 12,500. As in the preceding cases, there was a continuous supply for the kittens to lap. Four kittens were fed at the same time with wholesome milk.

The results showed (*a*) the five kittens fed with the weakest solution (1 in 50,000) showed an average increase of weight per week equal only to 70 per cent. of the healthily fed kittens; those fed with the next strongest solution (*b*) (1 in 25,000) increased in weight only to 55 per cent. of that of the healthily fed kittens. (*c*) Those animals fed with the proportion containing the largest amount of formalin, namely, 1 in 12,500, increased in weight only from 20 to 25 per cent. of the amount which the healthily fed kittens increased. Two of the number died after six weeks, suffering from emaciation, diarrhœa, and other evidences of disturbed digestion and starvation. The whole of the animals were kept under careful observation, and it appeared that the dosed animals showed general evidences of ill-health, inactivity and so on, and a disinclination to feed on the preserved milks.

There is not the slightest reason to doubt that the use for infants of milk or cream containing these preservatives will have precisely the same effects upon the infants as they have upon kittens, and the inquiry once more emphasises the absolute necessity for feeding infants as nature intended they should be fed, or if that is impracticable, to employ pure and natural substitutes.

(2.) **Anthrax in Tanneries.**—Several cases of Anthrax having occurred during 1899 amongst the workers of the tan yards, four of which proved fatal, a thorough investigation of the vats, hides and dust of the tan yards was made. The *bacillus anthracis* was found in large quantities in the gloves which the workmen used whilst cleaning the hides. The bacillus was also found in the vats used for macerating the hides and in the dust of the yards.

It was evident that the anthrax was introduced from the hides taken from infected animals, and a special investigation was then made of the ships which brought over the hides from Eastern ports. This resulted in finding the anthrax bacillus in the dust of a hold from a ship which had contained bales of hides. Subsequently an investigation was made to ascertain the kind of disinfectant which could be relied upon to destroy the anthrax bacilli (which is one most tenacious of life), but without injuring the hides.

(3.) **The Tuberculin Reaction.**—Some cows which reacted to tuberculin were slaughtered, and the subsequent inoculations proved the presence of the tubercle bacillus, although the lesions were very small, and confined to minute nodules in the lungs and bronchial glands.

(4.) **Sewage Investigations.**—The importance of bacteria in the treatment and disposal of sewage matter has occupied much attention recently. A large proportion of the work of the Royal Commission on Sewage Disposal is done at the Thompson-Yates Laboratories, and the Health Committee authorised a very large number of experiments to be carried out at the Sewage Farm at West Derby. These investigations have been very useful. The effluents from the sewage farm drains have been carefully examined from time to time, and have shown a very good average purification. Experimental filter-beds were constructed out of various materials, and have now been at work many months. The effluents yielded by some of the beds have been very good, showing a considerable amount of purification

(5.) **Plague Investigations.**—During the summer rats taken from ships in which plague had occurred were carefully investigated for the presence of the plague bacillus. They proved to be free. Two cases of *Bubo*, also from suspected ships, were examined for the presence of the plague bacillus, but careful bacteriological examination of the glands clearly demonstrated that the swelling was not due to this cause. The bacteriological diagnosis in these cases proved of the greatest importance in demonstrating the nature of the diseases suspected to be plague.

(6.) **Fish Poisoning.**—A bacteriological investigation into the cases of fish poisoning alluded to on page 145 resulted in the discovery of organisms kindred to those found in the putrefying contents of infants' feeding bottles. It is very difficult to say whether the organisms

alone are capable of producing the irritant symptoms, or whether these are due to some product resulting from the growth of the bacilli. Be it as it may, in either case the importance of absolute cleanliness is emphasised by the investigation.

RABIES.

During the year there have been no cases of rabies, but eight cases of suspected rabies, mostly reported by the police, have been carefully investigated; in none of the cases could the presence of that disease be ascertained.

The Medical Officer has arranged with the Board of Agriculture that in cases of suspected rabies, the inoculation test shall be made by the corporation bacteriologists, which obviates the necessity for sending parts of the bodies of dogs suspected of having that disease to London.

THE BACTERIOLOGICAL DIAGNOSIS OF CASES OF TYPHOID AND DIPHTHERIA.

The total number of diagnostic examinations made for the city hospitals was 201. It is of the greatest importance to be able to state whether the organism which causes diphtheria is present in the throat or not. With regard to the bacteriological diagnosis of typhoid fever, evidence is accumulating of the value of the test.

PATHOLOGICAL DIAGNOSIS SOCIETY.

This society is formed by a number of medical men, who desire diagnostic investigations to be carried out in respect to patients under their care. It is an extremely useful society, and numbers about 200 medical men.

The work of this society supplements that done for the corporation. For an annual subscription of 10s. 6d. any practitioner can have any number of cases of diphtheria, typhoid, tubercle, and other infective processes, urine and tumours examined bacteriologically. The number of investigations in this connection has nearly reached 1,000 during the year.

SPECIAL INVESTIGATIONS.

SUMMER DIARRHŒA.

The Medical Officer requested the Bacteriologist to make investigations into the condition of the artificial foods supplied to infants during the season of exceptional mortality from summer diarrhœa.

The homes of the poor where sickness was known to exist were visited, and the feeding bottles found in use, together with their contents, were removed to the laboratories, new bottles being given in their place at the cost of the Health Committee. Furthermore, the same practice was adopted at the dispensaries, the feeding bottles actually in use, and their contents, being taken away for examination, and other bottles given to replace them.

The bacteriological examination confirmed the evidence of the senses, the putrefying and offensive contents of the bottles containing innumerable putrefactive organisms, amongst them being the bacillus enteritidis sporogenes, which, judging from the effects of the injection of bacilli of this description into guinea pigs, is virulently destructive of life.

The tubes connected with the bottles were also found to contain putrefactive matter. The examination added confirmation to the neglect, ignorance and carelessness of the parents.

TUBERCULIN REACTION.

With the sanction of the owner, and at the request of the Hospitals Committee, the Medical Officer caused nine cows kept in a cowshed at West Derby to be subjected to the tuberculin test. Seven of the cows reacted, and with a view to determine to what extent the cows were affected by tubercle, the Health Committee sanctioned the purchase of the cow which was most affected, and also the cow which was least affected, in the opinion of the Veterinary Surgeons. These two cows were slaughtered forthwith in the presence of the owner, also Professor Boyce, the Veterinary Superintendent, the Medical Officer of Health, and other persons interested.

Both carcasses were in first-class condition, and in both cases the udders and the internal organs, excepting the lungs, were perfectly healthy.

As regards the lungs, in one case one or two very small nodules of tubercle were found, but in the other case the closest and most careful investigation failed to reveal anything further than a small slightly calcareous formation, about the size of an apple pip, which was situated in one of the bronchial glands, and another exceedingly small formation, about half the size, in the lung. This was regarded by Professor Boyce as the remains of a minute cyst, and the organs of both animals were taken to the laboratory for further examination. The cow in which no definite tubercle could be found contained a foetal calf.

On examination at the laboratory, the tubercle bacilli were found in the nodules in the first cow, and also in the minute nodules, apple-pip size, alluded to in the second cow.

If, therefore, the reaction was entirely owing to the tuberculin, the extremely delicate nature of the test receives confirmation, but at the same time it appears to be so excessively delicate as to lead to the opinion that its delicacy would limit the usefulness of its practical application.

The deductions so far are, that both animals were practically sound, and it would appear that neither of them could, in any way, be considered a source of danger.

Samples of milk had been taken shortly before the experimental inoculation of tuberculin, and specimens were also taken after the reaction had ceased. The most careful examination of these samples proved them to be wholly free from the tubercle bacilli.

CASES OF FOOD POISONING.

On Thursday, September 28th, 1899, the Deputy Coroner held inquests on five persons who died from acute food poisoning.

The facts shortly are as follows:—The deceased persons, all women between 44 and 70 years of age, had partaken of either cooked salt fish or pig's cheek at the stall of Mrs. B——, in St. Martin's Market, on the 14th, 15th or 16th of September. In a few hours after eating the food, each person became seriously ill with symptoms of acute food poisoning, and eventually died, four of them the day after taking the food, and the other the next day but one.

After consultation with the Medical Officer, a post-mortem and bacteriological examination was ordered by the Coroner to be made in each case by the Corporation Bacteriologist.

The result of the examination shewed that in all the cases, the naked eye appearances were identical, and indicated a very rapid and intense infection. In three cases the Bacteriologist was immediately able to discover the presence of the *Bacillus Enteritidis Sporogenes*, and in the other two, although this bacillus was not definitely proved to exist at the date of inquest, there appeared strong evidence that it was or had been present.

The *Bacillus Enteritidis Sporogenes* is found in sewage, foul air and water, foul vessels and filthy clothes, and in decomposing horse manure, &c. It is very resistant to heat, and its spores will survive the action of boiling water for some time.

Professor Boyce has also recently found it in dirty feeding bottles of infants suffering from acute diarrhœa.

In the case of the persons who died after eating food in St. Martin's Market, there was no evidence to prove how the food became contaminated by the bacillus. It may have been in the food before cooking, though in the case of the salt fish that is unlikely, or it may have infected the food afterwards. Enquiry showed that the food was kept under insanitary conditions by the vendor, at her house, and by alternate wetting and drying, cooking, and carrying through the streets, it would be in a condition suitable for the growth and development of the bacillus.

The Bacteriologist carried out experiments with portions of similar cooked and uncooked food, and with scrapings of stalls, &c., on which it lay. No examination of the actual offending food in these cases was possible, as the deceased persons ate their portions in the market, and by the time their deaths were known, the stall holder had no further sample of the same lot left. She in fact stated that she never carried over any cooked food from day to day.

Frequent observations by the Fish Inspectors have failed to show any naked eye appearances of diseased food on the stall.

Besides the five fatal cases, three other cases of illness came under the notice of the Medical Officer. These persons ate some of the same food in company with one or other of the deceased persons, and afterwards suffered with serious symptoms of food poisoning.

A table giving particulars of all the cases is appended. It is probable that a considerable number of persons ate food from Mrs. B——'s stall on the dates in question without suffering any ill effects.

Name.	Age.	Date of illness.	Result of illness.	Nature of food.	Bacteriologist's Report.
Catherine K. ...	48	September 14th.	Death, Sept. 15th...	Pig's Cheek ...	No Bacillus Enteritidis Sporogenes
Teresa D. ...	44	" 15th.	" " 16th...	Fish ...	" " "
Ellen M. ...	54	" 15th.	" " 17th...	" ...	Bacillus Enteritidis Sporogenes found
Margaret McG. ...	66-70	" 16th.	" " 17th...	" ...	" " "
Ann G. ...	62	" 16th.	" " 17th...	Fish and Pea Soup	" " "
Charles D. ...	15	" 15th.	Recovery ...	Fish ...	" " "
Catherine C. ...	...	" 15th.	" ...	" ...	" " "
Esther K. ...	...	" 16th.	" ...	Fish and Pea Soup	" " "

SAMPLES TAKEN FOR BACTERIOLOGICAL ANALYSIS OR
EXAMINATION.

Anchovy Paste	...	...	1	Olive Oil	...	...	...	1
Bloater	„	...	2	Oysters	...	...	...	4
Bovril	...	...	1	Periwinkles	...	...	...	1
Camp Coffee	..	...	1	Potted Beef	..	...	...	2
Cheese	...	..	6	„ Game	...	...	...	1
Chicken, Ham and Tongue	..		3	„ Ham	...	...	...	3
Cockles	...	..	4	„ Shrimps	...	...	...	3
Crab	..	...	1	„ Tongue	..	..	...	2
Cream	...	...	2	„ Venison	...	...	...	1
Dessicated Egg Food	..		1	„ Lobster	...	...	...	2
„ Soup	..	..	1	Preserved Peas	.	...	...	1
Dry Antiseptic	...	...	1	„ Peaches	...	...	...	1
Fruit Juice Lemonade	...		1	„ Pears	...	...	...	1
Ham and Tongue (Tinned)	..		1	„ Pineapple	...	...	...	1
Ham and Chicken	„	.	1	„ Tomatoes	...	...	...	1
Ice	..	...	1	Salmon (Tinned)	...	...	...	7
Jams	...	...	17	Salted Haddock	..	...	...	6
Jellies	...	...	4	„ Cod	...	...	...	8
Ketchup	..	...	1	„ Ling	..	...	...	2
Lemon Cheese	...	...	1	Sardines (Tinned)	...	...	...	9
Lobster (Tinned)	...	...	1	„ (Smoked, Tinned)	..	...	...	1
Malted Milk	...	..	1	Sausages (Smoked)	...	...	...	1
Margarine	...	..	14	Sauces	...	...	...	4
Marmalade	.	...	5	Sterilized Milk	...	...	...	5
Milk	...	...	352	Turkey and Tongue (Tinned)			...	2
„ Condensed	...	...	4	Veal and Ham	...	...	...	2
Mussels	...	...	5	TOTAL	...	...	...	<u>505</u>

Milk.—The total number of samples analysed has been 352. Of these 185 have been taken at the railway stations on arrival from the country, and 167 from the town.

Of the 185 railway samples, in 27 cases the inoculated animals died before the observation was completed, and of the remaining 158, 15 were proved to be tubercular, giving the percentage of tubercle in railway-borne milk as 8·1 per cent.

Of the town milks, 23 inoculated animals died before the observation was completed; of the remainder 1 was tubercular, thus giving a percentage of ·6, or less than 1 per cent.

In the following table the + sign denotes the presence of tubercle, the — sign the absence of tubercle, and the word negative indicates that the animal died before the tubercular reaction had time to develop, if it were present in the milk which was inoculated.

MILKS.

No.	Source.	Date.	Tubercle present or absent.
450	Town	January 4th	—
451	Town	January 4th	Negative.
455	Rail	January 6th	—
456	Rail	January 6th	Negative.
459	Town	January 12th	—
460	Town	January 12th	—
461	Town	January 12th	—
462	Town	January 12th	—
467	Rail	January 17th	—
468	Rail	January 17th	—
469	Rail	January 17th	+
470	Rail	January 17th	+
471	Town	January 17th	—
475	Rail	January 25th	—
476	Rail	January 25th	—
477	Rail	January 25th	—
478	Rail	January 25th	—
479	Town	January 26th	—
480	Town	January 26th	—
484	Town	January 30th	—
485	Town	January 31st	—

MILK.—*Continued.*

No.		Source.		Date.		Tubercle present or absent.
486	...	Town	...	January 31st	...	—
487	...	Town	...	January 31st	...	—
488	...	Town	...	January 31st	...	—
492	...	Rail	...	February 8th	...	+
493	...	Rail	...	February 8th	...	+
494	...	Rail	...	February 8th	...	—
495	...	Rail	...	February 8th	...	—
496	...	Rail	...	February 10th	...	—
503	...	Town	...	February 16th	...	—
504	...	Town	...	February 16th	...	—
505	...	Town	...	February 16th	...	—
507	...	Town	...	February 16th	...	—
508	...	Rail	...	February 23rd	...	—
509	...	Rail	...	February 23rd	...	—
510	...	Rail	...	February 23rd	...	—
511	...	Rail	...	February 23rd	...	—
512	...	Rail	...	February 23rd	...	—
519	...	Town	...	March 2nd	...	—
520	...	Town	...	March 2nd	...	—
521	...	Town	...	March 2nd	...	Negative.
522	...	Town	...	March 2nd	...	—
523	...	Town	...	March 2nd	...	—
524	...	Rail	...	March 9th	...	—
525	...	Rail	...	March 9th	...	—
526	...	Rail	...	March 9th	...	—
527	...	Rail	...	March 9th	...	—
528	...	Rail	...	March 9th	...	—
532	...	Town	...	March 6th	...	—
533	...	Town	...	March 6th	...	—
534	...	Town	...	March 6th	...	—
535	...	Town	...	March 6th	...	—
536	...	Town	...	March 6th	...	—
540	...	Rail	...	March 23rd	...	—
541	...	Rail	...	March 23rd	...	—
542	...	Rail	...	March 23rd	...	—
543	...	Rail	...	March 23rd	...	—
544	...	Rail	...	March 23rd	...	—
548	...	Town	...	March 29th	...	—
549	...	Town	...	March 29th	...	—
550	...	Town	...	March 29th	...	—
551	...	Town	...	March 29th	...	Negative.
552	...	Town	...	March 29th	...	—
561	...	Rail	...	April 7th	...	+
562	...	Rail	...	April 7th	...	+

MILK.—*Continued.*

No.		Source.		Date.		Tubercle present or absent.
563	...	Rail	...	April 7th	...	—
564	...	Rail	...	April 7th	...	—
565	...	Rail	...	April 7th	...	—
569	...	Town	...	April 13th	...	—
570	...	Town	...	April 13th	...	—
571	...	Town	...	April 13th	...	—
572	...	Town	...	April 13th	...	—
573	...	Town	...	April 13th	...	—
580	...	Rail	...	April 21st	...	—
581	...	Rail	...	April 21st	—	+
582	...	Rail	...	April 21st	—	+
583	...	Rail	...	April 21st	—	+
584	...	Rail	...	April 21st	...	—
588	...	Town	...	April 27th	...	Negative.
589	...	Town	...	April 27th	...	—
590	...	Town	...	April 27th	...	—
591	...	Town	...	April 27th	...	—
592	...	Town	...	April 27th	...	—
593	...	Rail	...	May 4th	...	—
594	...	Rail	...	May 4th	...	—
595	...	Rail	...	May 4th	...	Negative.
596	...	Rail	...	May 4th	...	Negative.
597	...	Rail	...	May 4th	...	Negative.
601	...	Town	...	May 11th	...	—
602	...	Town	...	May 11th	...	Negative.
603	...	Town	...	May 11th	...	—
604	...	Town	...	May 11th	...	Negative.
605	...	Town	...	May 11th	...	—
610	...	Country	...	May 16th	...	—
611	...	Country	...	May 16th	...	—
612	...	Country	...	May 16th	...	—
613	...	Country	...	May 16th	...	—
614	...	Country	...	May 16th	...	—
615	...	Country	...	May 16th	...	—
616	...	Country	...	May 16th	...	—
617	...	Country	...	May 16th	...	—
618	...	Country	...	May 16th	...	—
619	...	Country	...	May 20th	...	Negative.
620	...	Country	...	May 20th	...	Negative.
621	...	Country	...	May 20th	...	—
622	...	Country	...	May 20th	...	—
623	...	Country	...	May 20th	...	—
624	...	Country	...	May 20th	...	—
625	...	Country	...	May 20th	...	—

MILK.—*Continued.*

No.		Source.		Date.		Tubercle present or absent.
626	...	Country	...	May 20th	...	—
627	...	Country	...	May 20th	...	—
630	...	Rail	...	May 26th	...	—
631	...	Rail	...	May 26th	...	Negative.
632	...	Rail	...	May 26th	...	—
633	...	Rail	...	May 26th	...	—
634	...	Rail	...	May 26th	...	—
635	...	Town	...	June 2nd	...	—
636	...	Town	...	June 2nd	...	—
637	...	Town	...	June 2nd	...	—
638	...	Town	...	June 2nd	...	—
639	...	Town	...	June 2nd	...	—
643	...	Rail	...	June 6th	...	—
644	...	Rail	...	June 6th	...	—
645	...	Rail	...	June 6th	...	—
646	...	Rail	...	June 6th	...	Negative.
647	...	Rail	...	June 6th	...	—
651	...	Town	...	June 14th	...	—
652	...	Town	...	June 15th	...	—
653	...	Town	...	June 15th	...	—
654	...	Town	...	June 15th	...	Negative.
655	...	Town	...	June 15th	...	—
659	...	Rail	...	June 22nd	...	—
660	...	Rail	...	June 22nd	...	—
661	...	Rail	...	June 22nd	...	—
662	...	Rail	...	June 22nd	...	—
663	...	Rail	...	June 22nd	...	—
669	...	Town	...	June 29th	...	—
670	...	Town	...	June 29th	...	—
671	...	Town	...	June 29th	...	—
672	...	Town	...	June 29th	...	—
673	...	Town	...	June 29th	...	—
676	...	Rail	...	July 6th	...	—
677	...	Rail	...	July 6th	...	—
678	...	Rail	...	July 6th	...	—
679	...	Rail	...	July 6th	...	Negative.
680	...	Rail	...	July 7th	...	—
683	...	Town	...	July 14th	...	Negative.
684	...	Town	...	July 14th	...	—
685	...	Town	...	July 14th	...	—
686	...	Town	...	July 14th	...	—
687	...	Town	...	July 14th	...	—
691	...	Rail	...	July 20th	...	—
692	...	Rail	...	July 20th	...	—
693	...	Rail	...	July 20th	...	—

MILK.—*Continued.*

No.		Source.		Date.		Tubercle present or absent.
694	...	Rail	...	July 20th	...	Negative.
695	...	Rail	...	July 20th	...	—
698	...	Town	...	July 21st	...	—
701	...	Town	...	July 27th	...	Negative.
702	...	Town	...	July 27th	...	—
703	...	Town	...	July 27th	...	—
704	...	Town	...	July 27th	...	—
705	...	Town	...	July 27th	...	—
707	...	Country	...	July 31st	...	Negative.
708	...	Country	...	July 31st	...	—
709	...	Country	...	July 31st	...	—
710	...	Country	...	July 31st	...	—
711	...	Country	...	July 31st	...	Negative.
712	...	Town	...	August 2nd	...	+
713	...	Town	...	August 1st	...	—
714	...	Town	...	August 1st	...	—
715	...	Town	...	August 2nd	...	—
716	...	Town	...	August 2nd	...	—
717	...	Town	...	August 3rd	...	—
718	...	Town	...	August 3rd	...	—
719	...	Country	...	August 3rd	...	Negative.
720	...	Country	...	August 3rd	...	—
721	...	Rail	...	August 10th	...	—
722	...	Rail	...	August 10th	...	—
723	...	Rail	...	August 10th	...	—
724	...	Rail	...	August 10th	...	—
725	...	Rail	...	August 10th	...	—
726	...	Town	...	August 17th	...	—
727	...	Town	...	August 17th	...	—
728	...	Town	...	August 17th	...	—
729	...	Town	...	August 17th	...	—
730	...	Town	...	August 17th	...	—
735	...	Rail	...	August 26th	...	—
736	...	Rail	...	August 21st	...	—
737	...	Rail	...	August 26th	...	—
738	...	Rail	...	August 26th	...	—
739	...	Rail	...	August 26th	...	—
740	...	Town	...	August 30th	...	—
741	...	Town	...	August 31st	...	—
742	...	Town	...	August 30th	...	—
743	...	Town	...	August 30th	...	Negative.
744	...	Town	...	August 30th	...	—
748	...	Rail	...	September 7th	...	—
749	...	Rail	...	September 7th	...	—

MILK.—*Continued.*

No.		Source.		Date.		Tubercle present or absent.
750	...	Rail	...	September 7th	...	Negative.
751	...	Rail	...	September 7th	...	—
752	...	Rail	...	September 7th	...	—
759	...	Town	...	September 15th	...	—
760	...	Town	...	September 15th	...	Negative.
761	...	Town	...	September 15th	...	—
762	...	Town	...	September 15th	...	—
763	...	Town	...	September 15th	...	—
764	...	Rail	...	September 21st	...	—
765	...	Rail	...	September 21st	...	—
766	...	Rail	...	September 21st	...	—
767	...	Rail	...	September 21st	...	—
768	...	Rail	...	September 21st	...	—
772	...	Town	...	September 28th	...	—
773	...	Town	...	September 28th	...	—
774	...	Town	...	September 28th	...	—
775	...	Town	...	September 24th	...	—
776	...	Town	...	September 28th	...	—
780	...	Netherfield Road		October 2nd	...	—
		Hospital				
781	...	Mill Lane Hospital		October 3rd	...	—
782	...	Priory Rd. Hospital		October 4th	...	—
783	...	Town	...	October 4th	...	—
787	...	Rail	...	October 5th	...	—
788	...	Rail	...	October 6th	...	—
789	...	Rail	...	October 6th	...	+
790	...	Rail	...	October 6th	...	—
791	...	Rail	...	October 6th	...	+
792	...	Rail	...	October 6th	...	—
793	...	Town	...	October 12th	...	—
794	...	Town	...	October 12th	...	—
795	...	Town	...	October 12th	...	—
796	...	Town	...	October 12th	...	—
797	...	Town	...	October 12th	...	—
798	...	Town	...	October 12th	...	—
799	...	Town	...	October 12th	...	—
800	...	Town	...	October 12th	...	—
801	...	Town	...	October 12th	...	Negative.
802	...	Town	...	October 12th	...	—
809	...	Rail	...	October 19th	...	Negative.
810	...	Rail	...	October 19th	...	—
811	...	Rail	...	October 19th	...	—
812	...	Rail	...	October 19th	...	—
813	...	Rail	...	October 19th	...	Negative.

MILK.—*Continued.*

No.		Source.		Date.		Tubercle present or absent.
814	...	Rail	...	October 19th	...	—
815	...	Rail	...	October 19th	...	—
816	...	Rail	...	October 19th	...	—
817	...	Rail	...	October 19th	...	—
818	...	Rail	...	October 19th	...	—
819	...	Town	...	October 27th	...	—
820	...	Town	...	October 27th	...	—
821	...	Town	...	October 27th	...	—
822	...	Town	...	October 27th	...	—
823	...	Town	...	October 27th	...	—
824	...	Town	...	October 27th	...	—
825	...	Town	...	October 27th	...	—
826	...	Town	...	October 27th	...	—
827	...	Town	...	October 27th	...	—
828	...	Town	...	October 27th	...	—
833	...	Rail	...	November 3rd	...	—
834	...	Rail	...	November 3rd	...	—
835	...	Rail	...	November 3rd	...	—
836	...	Rail	...	November 3rd	...	—
837	...	Rail	...	November 3rd	...	Negative
838	...	Rail	...	November 3rd	...	—
839	...	Rail	...	November 3rd	...	Negative
840	...	Rail	...	November 3rd	...	—
841	...	Rail	...	November 3rd	...	Negative
842	...	Rail	...	November 3rd	...	Negative
843	...	Town	...	November 9th	...	—
844	...	Town	...	November 9th	...	—
845	...	Town	...	November 9th	...	Negative
846	...	Town	...	November 9th	...	—
847	...	Town	...	November 9th	...	Negative
848	...	Town	...	November 9th	...	—
849	...	Town	...	November 9th	...	—
850	...	Town	...	November 9th	...	—
851	...	Town	...	November 9th	...	—
852	...	Town	...	November 9th	...	—
855	...	Rail	...	November 14th	...	Negative.
856	...	Rail	...	November 14th	...	—
857	...	Rail	...	November 14th	...	—
858	...	Rail	...	November 14th	...	—
859	...	Rail	...	November 14th	...	Negative.
860	...	Rail	...	November 14th	...	—
861	...	Rail	...	November 14th	...	—
862	...	Rail	...	November 14th	...	—
863	...	Town	...	November 14th	...	Negative.
864	...	Rail	...	November 16th	...	Negative.

MILK.—*Continued.*

No.		Source.		Date.		Tubercle present or absent.
865	...	Rail	...	November 16th	...	—
871	...	Town	...	November 24th	...	—
872	...	Town	...	November 24th	...	—
873	...	Town	...	November 24th	...	—
874	...	Town	...	November 24th	...	—
875	...	Town	...	November 24th	...	—
876	...	Town	...	November 24th	...	Negative.
877	...	Town	...	November 24th	...	—
878	...	Town	...	November 24th	...	—
879	...	Town	...	November 24th	...	—
880	...	Town	...	November 24th	...	Negative.
881	...	Town	...	November 24th	...	—
882	...	Town	...	November 28th	...	—
883	...	Town	...	November 29th	...	Negative.
884	...	Town	...	November 29th	...	—
885	...	Rail	...	November 30th	...	—
886	...	Rail	...	November 30th	...	—
887	...	Rail	...	November 30th	...	—
888	...	Rail	...	November 30th	...	—
889	...	Rail	...	November 30th	...	—
890	...	Rail	...	November 30th	...	Negative.
891	...	Rail	...	November 30th	...	—
892	...	Rail	...	November 30th	...	—
893	...	Rail	...	November 30th	...	—
894	...	Rail	...	December 1st	...	Negative.
895	...	Town	...	December 1st	...	—
896	...	Town	...	December 6th	...	—
897	...	Town	...	December 6th	...	—
898	...	Town	...	December 6th	...	Negative.
899	...	Town	...	December 6th	...	—
900	...	Town	...	December 6th	...	Negative.
901	...	Town	...	December 6th	...	—
902	...	Town	...	December 6th	...	—
903	...	Town	...	December 6th	...	—
904	...	Town	...	December 6th	...	Negative.
905	...	Town	...	December 6th	...	—
906	...	Rail	...	December 14th	...	Negative.
907	...	Rail	...	December 14th	...	+
908	...	Rail	...	December 14th	...	—
909	...	Rail	...	December 14th	...	Negative.
910	...	Rail	...	December 14th	...	—
911	...	Rail	...	December 14th	...	Negative.
912	...	Rail	...	December 14th	...	—
913	...	Rail	...	December 14th	...	—
914	...	Rail	...	December 14th	...	Negative.

MILK.—*Continued.*

No.	Source.			Date.	Tubercle present or absent.	
915	...	Rail	...	December 14th	...	—
918	...	Town	...	December 19th	...	—
919	...	Rail	...	December 19th	...	—
920	...	Town	...	December 20th	...	—
921	...	Town	...	December 20th	...	—
922	...	Town	...	December 20th	...	Negative.
925	...	Town	...	December 21st	...	—
926	...	Town	...	December 21st	...	—
927	...	Town	...	December 21st	...	—
928	...	Town	...	December 21st	...	Negative.
929	...	Town	...	December 21st	...	—
930	...	Rail	...	December 29th	...	—
931	...	Rail	...	December 29th	...	—
932	...	Rail	...	December 29th	...	—
933	...	Rail	...	December 29th	...	Negative.
934	...	Rail	...	December 29th	...	+
935	...	Rail	...	December 29th	...	+
936	...	Rail	...	December 29th	...	Negative.
937	...	Rail	...	December 29th	...	—
938	...	Rail	...	December 29th	...	+
939	...	Rail	...	December 29th	...	—

General conclusions.—It will be seen from the analysis of milk that the occurrence of tubercle in the milk obtained from the shippens in the city is diminishing. The presence of the bacillus tuberculosis in the railway-borne milk is, however, still too frequent, although there is no doubt that many of the milk dealers realise the importance, in their own interests, of banishing tubercle.

PRESERVED MILKS, CHEESE, BUTTER, AND MARGARINE

Condensed Milks.—As in the previous year the condensed *tinned milks* are not always found to be sterile, or free from organisms. This form of milk ought always to be sterile; if it is not, it has no advantage over raw milk from a bacteriological point of view, and it may be the means of distributing pathogenic germs.

Sterilized Milks.—The analyses have revealed the presence of bacteria. This is most unsatisfactory, and shows that sufficient care is not taken to sterilise the milk, and that the manufacturers do not employ proper means to ensure the efficacy of their sterilising processes, nor do they adopt tests to prove that their methods are effectual. Unless milk sold as sterilised is actually so, it has no advantage over non-sterilised milk; on the contrary, the consumers are entirely misled, and an article is supplied which is not of the nature, substance and quality demanded.

TINNED MILKS.

No.		Date.		Result.
517	...	February 28th	...	Sterile.
628	...	May 24th	...	Not Sterile.
831	...	November 2nd	...	(No B. Coli Communis. No B. Enteritidis Sporogenes.
832	...	November 2nd	...	(No B. Enteritidis Sporogenes. No B. Coli Communis.

MALTED MILKS.

No.		Date.		Result.
518	...	February 28th	...	Sterile.

CREAM.

No.		Date.		Result.
699	...	July 23rd	...	Non Tubercular.
771	...	July 21st	...	Non Tubercular.

STERILIZED MILK.

No.	Date.	Name.	Result.
700	July 26th	Sterilized Milk	Not Sterile.
731	August 24th	Sterilized Humanised Milk	Not Sterile.
732	August 24th	Sterilized Humanised Milk	Not Sterile.
733	August 24th	Sterilized Milk	Not Sterile.
734	August 24th	Sterilized Milk	Not Sterile.

MARGARINE.

No.		Date.		Result.
500	...	February 14th	...	No Tubercle.
501	...	February 14th	...	No Tubercle.
502	...	February 14th	...	No Tubercle.
530	...	March 10th	...	No Tubercle.
531	...	March 10th	...	No Tubercle.
555	...	March 29th	...	No Tubercle.
556	...	March 29th	...	No Tubercle.
559	...	April 5th	...	No Tubercle.
560	...	April 5th	...	No Tubercle.
574	...	April 14th	...	Non Tubercular.
578	...	April 20th	...	No Tubercle.
579	...	April 20th	...	Suspicion of Tubercle, Doubtful.
608	...	May 12th	...	No Tubercle.
830	...	October 27th	...	No Tubercle.

CHEESE.

No.		Date.		Result.
553	...	March 29th	...	Non Tubercular.
554	...	March 29th	...	Non Tubercular.
575	...	April 14th	...	Non Tubercular.
606	...	May 12th	...	Non Tubercular.
607	...	May 12th	...	Non Tubercular.
				(Non Tubercular.
809	...	October 27th	...	(No Enteritidis Sporogenes.

Jams, &c.—A large number of samples have been examined and no pathogenic bacteria found. A very considerable number of the jams are sterile, a condition which is very satisfactory, the result of careful preparation. But the use of preservatives for this purpose, by lessening digestibility, lessens or destroys the nutritious properties of the food.

No.		Date.		Name.		Result.
489	...	February 3rd	...	Strawberry	...	Spores Mould Fungi.
490	...	February 3rd	...	Black Currant	...	Sterile.
491	...	February 3rd	...	Raspberry	...	Sterile.
513	...	February 23rd	...	Marmalade	...	Sterile.
585	...	April 26th	...	Gooseberry and Apple...	...	Sterile.
586	...	April 26th	...	Damson and Apple	...	Sterile.
587	...	April 26th	...	Plum and Apple	...	Sterile.
598	...	May 5th	...	Damson and Apple	...	Sterile.
599	...	May 5th	...	Marmalade	...	Sterile.
600	...	May 5th	...	Peach and Lemon	...	Sterile.
648	...	June 9th	...	Plum and Apple	...	Mould.

JAMS, &c.—Continued.

No.	Date.	Name.	Result.
649 ...	June 9th	Damson and Apple ...	Mould.
650 ...	June 9th	Apple Jelly ...	Sterile.
465 ...	June 14th	Preserved Pears ...	Sterile.
658 ...	June 16th	Fruit Juice ...	Not Sterile.
664 ...	June 22nd	Marmalade ...	Sterile.
665 ...	June 26th	Fig and Lemon ...	Sterile.
666 ...	June 22nd	Gooseberry and Apple...	Sterile.
688 ...	July 15th	Table Jelly ...	Not Sterile.
689 ...	July 15th	Table Jelly ...	Numerous Organisms.
690 ...	July 15th	Table Jelly ...	Numerous Organisms.
745 ...	September 1st	Marmalade ...	Sterile.
746 ...	September 1st	Damson and Apple ...	Sterile.
747 ...	September 1st	Pineapple ...	Not Sterile.
869 ...	November 24th	Rhubarb ...	Sterile.
870 ...	November 24th	Plum and Apple ...	Sterile.

Potted Meats.—A considerable proportion of these were found to be sterile; those which were not, with a single exception, contained no objectionable organism.

No.	Date.	Name.	Result.
454 ...	January 5th	Shrimps ...	No B. Coli Communis.
474 ...	January 17th	Beef ...	Not Sterile.
516 ...	February 28th	Bloater Paste ...	Sterile.
556 ...	April 11th	Shrimp Paste ...	Sterile.
567 ...	April 11th	Anchovy Paste ...	Not Sterile.
568 ...	April 11th	Bovril ...	Sterile.
577 ...	April 20th	Potted Ham ...	Sterile.
640 ...	June 2nd	Ham ...	Sterile.
641 ...	June 2nd	Tongue ...	Sterile.
642 ...	June 2nd	Game ...	Sterile.
656 ...	June 16th	Ham, Chicken, and Tongue Sausage.	Sterile.
657 ...	June 16th	Smoked Sausage ...	Sterile.
706 ...	July 27th	Venison ...	Not Sterile.
756 ...	September 12th	Beef ...	Sterile.
757 ...	September 12th	Ham ...	Sterile.
758 ...	September 12th	Tongue ...	Sterile.
769 ...	September 21st	Lobster ...	Not Sterile.
770 ...	September 21st	Shrimps ...	Not Sterile.
917 ...	December 14th	Lobster ...	Not Sterile.

Tinned Meats.—These ought to be sterile in every case, otherwise they may become a serious source of danger owing to slow fermentation taking place in the contents of the tin and leading to the production of poisonous products.

No.	Date.	Name.	Result.
457 ...	January 6th	Salmon	Numerous Organisms. No B. Coli Communis.
458 ...	January 6th	Sardines	Sterile.
464 ...	January 14th	Sardines	Not Sterile.
466 ...	January 14th	Lobster	Not Sterile.
472 ...	January 17th	Ham, Chicken, and Tongue	Not Sterile.
473 ...	January 17th	Ham and Tongue	Not Sterile.
497 ...	February 10th	Salmon	Not Sterile.
498 ...	February 10th	Salmon	Sterile (?)
545 ...	February 24th	Sardines	Not Sterile.
546 ...	February 24th	Turkey and Tongue	Sterile (?)
547 ...	February 24th	Veal and Ham	Not Sterile.
557 ...	April 5th	Ham, Chicken, and Tongue.	Sterile.
558 ...	April 5th	Turkey and Tongue	Sterile.
576 ...	April 20th	Veal and Ham	Sterile.
681 ...	July 7th	Sardines	Sterile.
682 ...	July 7th	Sardines	Sterile.
696 ...	July 21st	Sardines	Sterile.
697 ...	July 21st	Salmon	Sterile (?)
753 ...	September 8th	Bloater Paste	Sterile.
754 ...	September 8th	Ham and Chicken	Sterile.
755 ...	September 8th	Sardines	Sterile.
778 ...	September 28th	Sardines	Sterile.
853 ...	November 11th	Sardines	Sterile.
854 ...	November 11th	Salmon	Sterile.
867 ...	November 18th	Salmon	Not Sterile.
868 ...	November 18th	Salmon	Not Sterile.
916 ...	December 14th	Sardines.	Sterile.

TINNED FRUITS AND VEGETABLES.

No.	Date.	Name.	Result.
465 ...	January 14th	Peas (Preserved)	Sterile.
513 ...	February 23rd	Tomatoes (Preserved)	Sterile.
674 ...	July 1st	Pears (Preserved)	Sterile.
675 ...	July 7th	Peaches (Preserved)	Sterile.
866 ...	November 15th	Pine Apple (Preserved)...	Not Sterile.

Shell Fish.—Unlike preserved foods which have been submitted to processes intended to destroy bacteria, shell fish, owing to the fact that they are eaten raw, may be a very serious source of infection. None of the samples, however, examined showed evidence of disease-producing organisms. It is to the interest of the oyster merchant to see that the oyster beds are absolutely free from sources of possible pollution. The same remark applies to dealers in other kinds of shell-fish.

No.	Date.	Name.	Result.
452 ...	January 5th	Oysters ...	No B. Coli Communis.
453 ...	January 5th	Oysters ...	No B. Coli Communis.
463 ...	January 12th	Mussels ...	No B. Coli Communis.
481 ...	January 27th	Cockles ...	No B. Coli Communis.
482 ...	January 27th	Mussels ...	No B. Coli Communis.
483 ...	January 27th	Oysters ...	No B. Coli Communis.
537 ...	March 17th	Mussels ...	No B. Coli Communis.
538 ...	March 17th	Cockles ...	No B. Coli Communis.
805 ...	October 18th	Oysters ...	No B. Enteritidis Sporogenes.
806 ...	October 18th	Mussels ...	No B. Enteritidis Sporogenes.
807 ...	October 18th	Cockles ...	No B. Enteritidis Sporogenes.
808 ...	October 18th	Periwinkles ...	No B. Enteritidis Sporogenes.
923 ...	December 21st	Cockles ...	No B. Enteritidis Sporogenes. No B. Coli Communis.
924 ...	December 21st	Mussels ...	No B. Enteritidis Sporogenes. No B. Coli Communis.

SAUCES.

No.	Date.	Name.	Result.
617 ...	June 28th	Mint Sauce ...	Not Sterile.
668 ...	June 28th	Chutney ...	Not Sterile.
784 ...	October 6th	Chutney ...	Not Sterile.
803 ...	October 13th	Worcester Sauce ...	Sterile.

MISCELLANEOUS.

No.	Date.	Name.	Result.
479 ...	February 10th	Desiccated Soup ...	Not Sterile.
514 ...	February 23rd	Desiccated Egg Food ...	Numerous Organisms.
539 ...	March 17th	Crab ...	Not Sterile.
629 ...	May 24th	Ice ...	Numerous Organisms.
777 ...	September 29th	Camp Coffee ...	Not Sterile.
785 ...	October 5th	Lemon Cheese ...	Not Sterile.
786 ...	October 5th	Olive Oil ...	Sterile.

WATER ANALYSES.

During the year 1899 systematic examinations of the drinking water have been made. In collecting the samples the usual precautions to prevent extraneous contamination have been taken. The analyses show that the water is uniformly very good. No pathogenic forms have been isolated, and the average number of bacteria per cubic centimetre has been well below 100 (Koch's Standard). A very large number of analyses have also been made for the purposes of the Water Committee, and these appear in the separate report of the Water Committee.

The following are the sources which have been examined:—

Fortnightly Examinations—

Ashton Hall Tap.

Monthly Examinations—

- PRESCOT — {
Lake Vyrnwy Water.
Rivington Water.
The Mixed Water.
- WELLS - {
Windsor Well.
Dudlow Lane Well.
Green Lane Well.

ASHTON HALL—Fortnightly Samples.

Source.	Date.	Time of		Time of		Bacteria Present.	
		Collecting.		Investment.		Genuine.	Agar.
Ashton Hall	January 7th	10	0 a.m.	10	5 a.m.	25	3
"	January 20th	2	25 p.m.	2	30 p.m.	120	50
"	February 6th	2	0 p.m.	2	7 p.m.	104	11
"	February 15th	10	15 a.m.	10	25 a.m.	21	12
"	March 2nd	4	0 p.m.	4	15 p.m.	89	21
"	March 20th	12	0 noon.	12	7 p.m.	68	15
"	April 1st	10	10 a.m.	10	15 p.m.	87	26
"	April 17th	2	0 p.m.	2	7 p.m.	1550	240
"	April 21st	10	5 a.m.	10	9 a.m.	143	67
"	May 12th	5	0 p.m.	5	7 p.m.	9	2
"	May 26th	4	0 p.m.	4	7 p.m.	63	19
"	June 10th	10	0 a.m.	10	7 p.m.	31	5
"	June 21st	4	0 p.m.	4	5 p.m.	75	16
"	July 5th	2	0 p.m.	2	7 p.m.	77	22
"	July 19th	2	0 p.m.	2	8 p.m.	81	—

ASHTON HALL.—Fortnightly Samples.—Continued.

Source.	Date.	Time of Collecting.	Time of Investment.	Bacteria Present. Gelatine. Agar.	
Ashton Hall	August 19th	—	—	100	—
„	August 29th	2 35 p.m.	2 45 p.m.	88	96
„	Septemb'r 15th	9 45 a.m.	9 54 a.m.	50	—
„	Septemb'r 27th	2 30 p.m.	2 45 p.m.	19	17
„	October 10th	11 30 a.m.	11 45 a.m.	30	—
„	October 30th	9 0 a.m.	9 5 a.m.	40	10
„	November 10th	9 30 a.m.	10 0 a.m.	15	12
„	November 25th	1 0 p.m.	5 30 p.m.	Liquefied	—
„	December 7th	10 0 a.m.	10 10 a.m.	24	12
„	December 21st	2 30 p.m.	2 40 p.m.	23	—

PRESCOT—YYRNWY WATER—Monthly Samples.

Source.	Date.	Time of Collecting.	Time of Investment.	Bacteria Present. Gelatine. Agar.	
Vyrnwy	January 17th	12 30 p.m.	1 0 p.m.	52	16
„	February	—	—	—	—
„	March 29th	11 0 a.m.	12 30 p.m.	112	128
„	April 26th	2 0 p.m.	3 30 p.m.	83	4
„	May 15th	—	3 35 p.m.	13	8
„	June 21st	2 30 p.m.	4 10 p.m.	58	13
„	July 17th	2 15 p.m.	4 0 p.m.	43	—
„	August 28th	2 0 p.m.	4 0 p.m.	24	48
„	Sept. 29th	2 2 p.m.	3 30 p.m.	8	13
„	October 27th	12 30 p.m.	4 0 p.m.	30	—
„	November 24th	12 45 p.m.	3 30 p.m.	10	7
„	December 20th	2 5 p.m.	3 45 p.m.	15	—

PRESCOT—RIVINGTON WATER—Monthly Samples.

Source.	Date.	Time of Collecting.	Time of Investment.	Bacteria Present. Gelatine. Agar.	
Rivington	March 1st	11 0 a.m.	12 0 noon.	15	170
„	March 29th	11 0 a.m.	12 30 p.m.	104	368
„	April 26th	2 0 p.m.	3 30 p.m.	22	15
„	May 15th	2 15 p.m.	3 35 p.m.	21	11
„	June 21st	2 30 p.m.	4 10 p.m.	70	20
„	July 17th	2 17 p.m.	4 0 p.m.	25	—
„	August 28th	2 5 p.m.	4 0 p.m.	2	24
„	Sept. 29th	2 7 p.m.	3 30 p.m.	30	3
„	October 27th	12 35 p.m.	4 0 p.m.	30	8
„	November 24th	12 50 p.m.	3 0 p.m.	9	—
„	December 20th	2 8 p.m.	3 45 p.m.	20	—

PRESCOT—MIXING WELL—Monthly Samples.

Source.	Date.	Time of Taking.	Time of Investment.	Bacteria Present.	
				Gelatine.	Agar.
Mixing Well	January 17th	12 30 p.m.	1 0 p.m.	50	23
..	February	—	—	—	—
..	March 29th	11 0 a.m.	12 30 p.m.	40	43
..	April 26th	2 0 p.m.	3 30 p.m.	51	73
..	May 15th	2 15 p.m.	3 35 p.m.	53	200
..	June 21st	2 30 p.m.	4 10 p.m.	120	47
..	July 17th	2 20 p.m.	—	107	—
..	August 28th	2 10 p.m.	4 0 p.m.	72	80
..	Sept. 29th	2 10 p.m.	3 30 p.m.	88	—
..	October 27th	12 40 p.m.	4 0 p.m.	50	45
..	November 24th	12 55 p.m.	3 0 p.m.	Liquefied	3
..	December 20th	2 10 p.m.	4 0 p.m.	10	—

WINDSOR WELL—Monthly Samples.

Source.	Date.	Time of Collecting.	Time of Investment.	Bacteria Present	
				Gelatine.	Agar.
Windsor Well	January 20th	2 15 p.m.	2 30 p.m.	105	6
..	March 2nd	8 40 a.m.	9 5 a.m.	93	31
..	March 30th	8 35 a.m.	9 20 a.m.	39	37
..	April 29th	8 30 a.m.	9 0 a.m.	114	38
..	May 26th	9 0 a.m.	9 20 a.m.	400	57
..	June 20th	2 0 p.m.	2 20 p.m.	12	8
..	July 19th	8 15 a.m.	9 0 a.m.	28	—
..	August 29th	10 42 a.m.	11 20 a.m.	10	11
..	Sept. 27th	9 35 a.m.	2 0 p.m.	22	5
..	October 26th	2 30 p.m.	11 0 a.m. Oct. 27	70	—
..	November 25th	11 0 a.m.	5 30 p.m.	44	2
..	December 19th	3 30 p.m.	4 0 p.m.	80	4

DUDLOW LANE—Monthly Samples.

Source.	Date.	Time of Collecting.	Time of Investment.	Bacteria Present.	
				Genuine.	Agar.
Dudlow Lane	January	—	—	—	—
..	February	—	—	—	—
..	March 1st	2 48 p.m.	4 10 p.m.	16	8
..	March 29th	2 45 p.m.	4 15 p.m.	12	7
..	April 28th	10 0 a.m.	11 45 a.m.	31	22
..	May 26th	3 0 p.m.	4 20 p.m.	350	41
..	June 21st	10 4 a.m.	12 50 p.m.	6	3
..	July 18th	2 30 p.m.	4 0 p.m.	20	—
..	August 28th	11 15 a.m.	2 0 p.m.	72	56
..	Sept. 27th	10 20 a.m.	2 0 p.m.	10	10

DUDLOW LANE.—Monthly Samples.—Continued.

Source.	Date.	Time of Collecting.	Time of Investment.	Bacteria Present.	
				Gelatine.	Agar.
Dudlow Lane	October 26th	12 15 p.m.	11 0 a.m. Oct. 27	30	—
„	November 25th	11 30 a.m.	5 30 p.m.	152	—
„	December 19th	3 10 p.m.	4 0 p.m.	80	—
Woolton—Tap in Engine Room	January 18th	3 0 p.m.	3 30 p.m.	28	4
Reservoir	January 18th	3 0 p.m.	3 30 p.m.	320	13
„	February	—	—	—	—
„	March 1st	2 40 p.m.	4 10 p.m.	20	13
„	March 29th	3 10 p.m.	4 15 p.m.	14	12

GREEN LANE WELLS—Monthly Samples.

Source.	Date.	Time of Collecting.	Time of Investment.	Bacteria Present.	
				Gelatine.	Agar.
G. Holt Well	January	—	—	—	—
„	February	—	—	—	—
„	March 1st	3 30 p.m.	4 10 p.m.	35	3
„	March 29th	3 3 p.m.	4 15 p.m.	26	24
„	April 28th	11 0 a.m.	11 45 a.m.	{ Colonies too numerous to be counted	
„	May 26th	2 0 p.m.	4 15 p.m.		
„	June 21st	11 30 a.m.	12 50 a.m.	200	500
„	July 18th	3 30 p.m.	4 0 p.m.	640	—
„	August 28th	10 45 a.m.	2 0 p.m.	296	512
„	Sept. 27th	11 17 a.m.	2 0 p.m.	17	12
„	October 26th	1 5 p.m.	11 0 a.m., Oct. 27.	240	40
„	November	—	—	—	—
„	December 19th	1 45 p.m.	4 0 p.m.	85	—
J. Holmes Well	January	—	—	—	—
„	February	—	—	—	—
„	March 1st	3 33 p.m.	4 10 p.m.	20	340
„	March 29th	3 35 p.m.	4 15 p.m.	73	64
„	April 28th	11 0 a.m.	11 45 a.m.	{ Colonies too numerous to be counted	
„	May 26th	2 10 p.m.	4 15 p.m.		
„	June	—	—	—	—
„	July 18th	3 30 p.m.	4 0 p.m.	364	—
„	August 28th	10 45 a.m.	2 0 p.m.	Liquefied.	—
„	Sept. 27th	11 21 a.m.	2 0 p.m.	37	340
„	October 26th	1 0 p.m.	11 0 a.m., Oct. 27	50	3,200
„	November 25th	12 0 noon.	5 30 p.m.	240	—
„	December 19th	1 45 p.m.	4 0 p.m.	94	—

The following gentlemen have assisted in the bacteriological work:—
 Dr. Balfour Stewart, Assistant Bacteriologist; Dr. Grünbaum; Dr. Warrington; Dr. Annett; and Dr. Hill.

CLEANSING AND SCAVENGING.

The benefit previously noted from the extension of the practice of street washing was marked last year. Other improvements in the details of the methods of cleansing and scavenging the streets are under consideration, and will, when carried into effect, add to the health and comfort of the inhabitants. Owing to the difficulties arising from bad planning of many of the smaller streets and the absence of adequate back passages, many obstacles have yet to be overcome before the collection and removal of domestic refuse can be regarded as satisfactory.

At present the objectionable practice of depositing the contents of ashpits upon the street surface, awaiting the arrival of the cart, and leaving them to be blown about by the winds or scattered by traffic, or where children play upon them, still continues in many districts.

With regard to street washing, it is now plain that the water can be applied in such a way as to effect the purpose desired, without in any way damaging the surface of the street. During the hot weather of last year, street washing was considerably extended; 139 streets were washed once a week, 8 streets twice a week, and all tunnel entrances to courts were washed three times a week.

In addition to the foregoing, a number of insanitary streets and the passages connected therewith were washed three times a week. Also 70 cab and tramway stands were washed, some twice and some three times a week.

The cleansing effects of heavy falls of rain were, as is always the case in the summer months, markedly beneficial. Attention to the cleansing of courts and alleys requires to be incessant, since the least relaxation in the efforts of the officers of the committee results at once in the grossest filthiness on the part of the occupants, most of whom are indifferent, and very many drunken.

All private, domestic, and office drains are flushed by the City Engineer's staff twice a year, and there can be no question that a more frequent and very thorough flushing would be attended with great advantage.

Attention may again be called to the value of street washing, drain flushing, and so forth by the effects of heavy rainfall. As has been shown in previous reports, it is an almost invariable experience that the choleraic disease of the summer and autumn months is highest when

rainfall is low, and declines to its minimum when frequent, sudden and heavy, rather than continuous, rainfall occurs. The explanation is that in a fine warm summer, the accumulations of dust and dirt, largely unavoidable unless removed by washing, give rise to a filth-laden atmosphere, and the mischief which follows from such a condition. Consequently the full benefit of rain will only be experienced when the fall is heavy enough to exert a cleansing power.

The connection between cleanliness and health is indicated by the table showing the association of rainfall with diminished mortality from choleraic diarrhœa, during the last twenty years, six of which were average wet summers, with relatively low mortality, and fourteen were average dry summers, with considerably higher mortality; the extremes being 1891 and 1895:—

Period.	Average Annual Rainfall, June to September.		Annual Average of Deaths from Zymotic Diarrhœa during the Third Quarter of the year.			
Six years	...	13·8 inches	...	<div> <div>Average wet Summers</div> <div>...</div> <div>373</div> </div>		
Fourteen years		10·9 inches	...	<div> <div>Average dry Summers</div> <div>...</div> <div>573</div> </div>		
Extreme years.	{	Year 1891	...	16 inches	...	<div> <div>Wet Summer</div> <div>...</div> <div>203</div> </div>
		Year 1895	...	7·7 inches	...	<div> <div>Dry Summer</div> <div>...</div> <div>819</div> </div>

The difference in rainfall in the two years 1891 and 1895 means that upwards of 900 millions of gallons of water were distributed to the then city in the season of low mortality, which were absent in the year of high mortality.

It may be necessary to explain that public cleanliness is only one factor in the prevention of this form of disease, but at the same time it is one of the most important, and it is easy to see the benefits which must result when Nature applies an additional 900 million gallons of water to cleansing purposes.

The City Engineer has kindly supplied the following tables, which indicate the magnitude of the operations carried out by that portion of the staff under his control:—

TABLE No. 1.

NIGHT SERVICE
FOR EMPTYING COURT, &c., ASHPITS, AND MIDDENS.

Consequent upon the gradual extinction of middens, either by entire demolition or by the conversion of them into dry ashpits, the operations of the night service are now confined to the removal of domestic and office ashes from the neighbourhood of the Exchange, where it would be impracticable to perform the necessary work during business hours.

Notices Received.	Total Number of Collec- tions from Ashpits, etc.	Average Number of Court Ashpits, etc., Emptied per night.	Total Number of Loads of Ashes, etc., Collected.	Depots at which Refuse was Deposited.			Average Working Staff per night.				Analysis of Work.		Average contents of each Ashpit.
				Chisen- hale Street.	Sandhills.	Queen's Half-tide Dock.	Ashpit Men.	Wharf Men.	Carts.	Horses.	Loads per Man per Night.	Loads per Cart per Night.	
793	2905	9	4517	4517	...	...	6·7	1·	3·	3·	2·2	4·15	1·5

TABLE No. 2.
SERVICE FOR THE COLLECTION AND REMOVAL OF DRY ASHPIT ASHES.

Notices Received.	Total Number of Collec- tions from Ashpits.	Loads of Dry Ashes.							Average Daily Working Staff.			Analysis of Work.		Average contents of each Ashpit.
		Total Number of Loads Removed.	Depots at which Refuse was Deposited.						Ashpit Men.	Carts and Wagons.	Horses.	Loads per Man per day.	Loads per Cart per Day.	
			Chisenhale Street.	Sandhills.	Queen's Half-tide Dock.	Rathbone Road Destructor.	Smithdown Road Destructor.	St. Domingo Destructor.							Rubbish Tips, &c.
3,454	679,996	100,254	Loads. 16,339	Loads. 15,436	Loads. 17,391	Loads. 7,176	Loads. 11,256	Loads. 9,714	Loads. 22,942	No. 78·4	No. 86·1	No. 2·6	No. 4·1	Load. ·15

It will be observed that the number of notices received to empty ashpits is only ·5 per cent. of the total collections made from ashpits. The number of brick ashpits within the old City and Added Areas is approximately 65,000, and the figures show that the average number of times each ashpit was emptied was 10·4. From the 65,000 pits 100,254 loads were removed, therefore, the average contents at each time of emptying was only ·15 of a load.

TABLE No. 3.

SERVICE FOR THE COLLECTION AND REMOVAL OF BELL CART ASHES.

The bell cart service provides for the daily removal of domestic refuse from shops, business premises, and dwelling-houses where no permanent conveniences exist for the storage of this description of refuse. The service has to be conducted within certain limited hours of the morning to suit the convenience of occupiers and the exigencies of business.

Total Quantity of "Bell Cart" Ashes Collected.	Depots at which Refuse was Deposited.						Average Quantity of Refuse Collected per day.	
	Chisenhale Street.	Sandhills.	Queen's Half-Tide Dock.	Rathbone Road Destructor.	Smithdown Road Destructor.	St. Domingo Destructor.	Rubbish Tips.	Average Number of Carts Employed per day.
Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.	Loads.
22,587	10,230	2,053	5,066	970	2,089	1480	702	22.1
								72

TABLE No. 4.
SERVICE FOR FLUSHING AND CLEANSING TROUGH WATER CLOSETS, &c.

Underground Conveniences.	Urinals.	Number of Trough Water Closets.	Average Working Staff.	
			Trough W. C. Men.	Underground Conveniences and Urinal Men.
18—152 Stalls	205—570 Stalls	2,089	37	15, and 4 employed part time only.

The frequent flushing of trough water closets is essential as a sanitary measure, especially as this form of closet is provided principally in the more densely-populated portions of the City. During the Summer months a large number of the public urinals and trough water closets are cleansed and disinfected twice daily, and during the remaining part of the year once daily.

TABLE No. 5.

SERVICE FOR THE CLEANSING OF STREETS, COURTS, AND PASSAGES, AND THE COLLECTION OF REFUSE.

THEREFROM, &c.

During the year 1899, 89,100 loads of sweepings were collected, including a proportion of ashpit and domestic refuse deposited on the surface of streets by occupiers of premises, notwithstanding that special Lay Stalls are provided for the reception of this refuse.

Total Number of Loads Removed.	Depôts at which Refuse was Deposited.					Average Daily Staff.				Average Number of Loads Removed Daily per Cart.	
	Chisenhale Street.	Sandhills.	Waverlee.	Queen's Half-tide Dock.	Rubbish Tips.	Sweeping Machines.		Average Number of Men Employed per day.	Carts.		Horses.
						Day.	Night.				
89,100	Loads. 39,863	Loads. 9,986	Loads. 3,615	Loads. 14,535	Loads. 21,101	6·7	5·3	544·5	76·4	88·4	3·4

TABLE No. 6.

CLEANSING AND REMOVAL OF REFUSE FROM STREETS, COURTS, AND PASSAGES ON SUNDAYS.

A number of the principal streets in the central parts of the City are cleansed on Sunday mornings, and also domestic refuse is collected from some districts of the City, as a sanitary measure.

Loads of Street Sweepings.											
Removed.			Depots at which Refuse was Deposited.							Average Daily Staff.	
Saleable Refuse.	Unsaleable Refuse.	Total.	Chisenhale Street.		Sandhills.		Queen's Half-Tide Dock.		Tips.	Men.	Horses.
			Saleable Refuse.	Unsaleable Refuse.	Saleable Refuse.	Unsaleable Refuse.	Saleable Refuse.	Unsaleable Refuse.			
1,426	3,102	4,528	1,426	801	—	657	—	1,125	512	210·7	37·1

TABLE No. 7.

SERVICE FOR STREET WATERING.

A great quantity of water is spread upon the streets during the summer months, and a small proportion of the total quantity is also used for street washing during the year under certain conditions of the weather. It may be taken that upwards of 55 million gallons of water were distributed during the season.

Number of Days on which Carts were out.	Loads of Water Distributed.		Average Daily Staff employed during the Season.		Average No. of Loads distributed Daily per Cart.
	Large.	Small.	Watermen.	Carts and Horses.	
		Day.			
148	180,852	15,690	25.9	37.3	32.7

TABLE No. 8.
REMOVAL OF GARBAGE FROM ABATTOIR.

Loads Removed.	Where Deposited.		
	Chisenhale Street.	Sandhills.	Queen's Half-Tide Dock.
1,896	1,896	—	—

TABLE No. 10.

DESPATCHES OF MANURE AND REFUSE.

DEPÔTS.	Quantity of Saleable Refuse.			Quantity of Unsaleable Refuse.							Grand Total in Tons.	Average Daily Staff.	
	Street Sweepings	Mixture.	Total.	Contractors	Farmers.	Depôts.	Sea.	Destructors.	Sundry Tips.	Total.		Inspectors and Foremen.	Labourers.
Chisenhale St., by Flats...	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	42,528	1	214
Sandhills do. ...	...	5,664	5,664	384	32,544	3,936	...	...	...	36,864	3,792
Do. by Rail ...	648	...	648	...	7,089	...	...	...	...	7,089	7,737
Wavertree do. ...	3,201	...	3,201	...	232	232	3,433	...	2
Chisenhale Street and Sandhills, <i>via</i> Stanley D'k	...	...	...	...	...	...	2,490	...	...	2,490	2,490
per "Alpha" .....	...	...	...	...	...	...	81,075	...	...	81,075	81,075
per "Beta"	44
Queen's Half-Tide Dock ...	...	...	...	...	...	...	...	...	...	...	...
Do., per "Alpha" .....	...	...	...	...	...	...	59,868	...	...	59,868	59,868
Do., per "Beta"	2,985	2,985	2,985	1	447
Chisenhale Street Wharf ...	...	...	...	...	...	...	...	33,306	...	33,306	33,306
Rathbone Road .....	...	...	...	...	...	...	...	8,026	...	8,026	8,026
Smithdown Road	11,528	...	11,528	11,528
St. Domingo .....	...	...	...	...	...	...	...	14,274	...	14,274	14,274
Sundry Tips .....	...	...	...	...	...	...	...	...	67,885	67,885	67,885
	3,849	5,664	9,513	384	43,657	3,936	146,418	67,134	67,885	329,414	338,927	2	763

The foregoing Table shows that in all not less than 338,927 tons of town refuse have been disposed of by the various means available for the purpose. Large as the total is, it does not represent the quantity actually collected and carted to the Wharves, as during the Winter months a large proportion of the street sweepings consists of a quantity of water, which drains away before the refuse is despatched from the Wharves or Railway Sidings.

TABLE No. 11.

Deals with the Horses employed on the work of the Cleansing Department.

HORSES.—DAILY AVERAGE NUMBER.

Night Ash Removal.	86.1	Sundry Ash Tips.	22.1	Street Scavenging.	6.7	Sweeping Machines, Day.	5.4	Wharves.	1.3	Watering.	1.5	Canals.	2.3
Dry Ash Removal	1.4	Bell Ash Removal.	76.4	Sweeping Machines, Night.	.1	Market.	17.6	Abattoir.	2.3				

INSANITARY PROPERTY.

INSANITARY PROPERTY.

The property included in the 16th Report, dated 21st February, 1899, comprised 706 houses. The general arrangement of the dwellings was similar to the well-known court property in Liverpool, which has often been described. The houses themselves each contain three rooms placed one above the other, the staircase leading direct from one room to the other.

In many instances little, if any, sunlight can get to the courts, and the atmosphere within the dwellings is always foul, owing largely to the saturated condition of the walls and ceilings, which for so many years have absorbed the exhalations of the occupants into their porous material.

The houses are placed back to back and side to side with one another, and have no adequate or through ventilation, and are without a sufficient closet accommodation to fulfil the requirements of health and decency. They are closely arranged in courts, which are approached by narrow passages, these in most instances being converted into tunnels by the extension over them of the room usually occupied as a bedroom on the first floor.

Extreme dilapidation, long continued neglect and inattention, filth-saturation of porous materials, combine with the original vicious construction of the property to render the unfitness for human habitation of the property in the 16th Report, as marked as in any case previously dealt with. The property, like the rest of its class, was erected at a time when sanitary requirements were not understood, and when there were no building regulations whatever. Some of it figured on maps dated 1813. One serious defect is the situation of the common closets, which whilst they practically abut upon some of the houses in the court, are difficult or impossible of access in bad weather to the occupants of the houses which have a joint right to their use. Hence the retention in times of sickness or inclement weather of offensive matter within the houses, which contributes to the general foulness of the atmosphere.

As might be expected in property so decayed, the owners are unwilling to spend money on it, even to remedy the more urgent sanitary necessities; thus, in 1898 alone, 618 notices required to be served on the owners of the property under the Public Health Act, or Local Sanitary Acts, to abate nuisances more or less grave, such as defective brickwork causing dampness, defective roofs, dangerous cellar railings, defective drains, filthy rubbish in the cellars, dangerous kitchen ceilings, defective water-supply, and so forth. During the same period 141 notices were served upon owners for allowing the houses to be in a filthy condition.

With regard to the position of the property, Group 1 comprises the greater part of four contiguous streets, viz.:—

Bispham Street,

Henry Edward Street,

Adlington Street,

Lace Street.

This property is some of the oldest in the city, and it appears on maps about 90 years old exactly as it is now. The district is identified with the history of disease and mortality in the city, and its records are those of suffering and misery. From time to time it has come into conspicuous prominence owing to outbreaks of disease of exceptional severity. Dr. Duncan records that these streets suffered severely in the great outbreak of fever in 1847, and they were again severely visited two years later in the great cholera epidemic of 1849, the earliest local cases being reported in Lace Street and Henry Edward Street, and from these foci, spreading over the neighbourhood, and ultimately over the City. From that year onwards, up to 1865, fever was never absent from the district, and a report in that year, made by Dr. Trench, contains the following observation in regard to it:—"This locality is one which would enable the observer to form a 'correct opinion of the physical condition of a real fever centre,' and amongst an especially bad cluster of streets, he enumerates these four. Tracing their history onwards, Bispham Street furnished the earliest case of cholera which preceded—and which may be looked upon as the beginning of—the great outbreak of cholera in 1866. When this great outbreak had forced additional notoriety upon the locality, a few houses were demolished with a view to lessen obstruction to ventilation, and railings were substituted for divisional walls between the courts, and the

privies and ashpits removed and trough closets substituted, and the courts were consequently rendered less congested. These alterations were, however, quite inadequate. Since that time every available sanitary adjunct, short of demolition, has been brought to bear upon the streets, such as improved water-supply, lessening of over-crowding by constant inspection, immediate removal of the sick to hospital, improved closet accommodation, frequent scavenging, and the like. Thanks to the organisation of the Health Committee, zymotic disease has been reduced to a minimum, but diseases of other kinds incidental to property so insanitary in construction, remain almost unaltered, and the average death-rate during the last three years amounted to 42·1. The district is historical in disease. Every year for generations, it has swollen the City records of mortality, and although less conspicuous now than in former times, yet the sickness and disease in this locality is still far in excess of the average death-rate of the whole City, which during the same three years averaged 22·5, while Victoria Square and Juvenal Buildings during the same period averaged 21·2.

It may be urged that the habits of life of the occupants contribute to their melancholy condition, but, be that as it may, the health returns of the City furnish a terrible indictment against the locality, and the sanitary welfare of the community will be promoted by its demolition.

The second group comprises the small areas of insanitary property situated in Smithfield Street, Tomlin Street and Upper Milk Street. These present characteristics similar to those in group 1, and the observations which have been made in respect to group 1, are practically applicable to this group.

The remainder of the property scheduled in the report is not of such old construction, but with the exception of extreme age and consequent dilapidation, presents every feature which has conduced to the destruction of health.

In group 3, as the table indicates (page 188), as a group the highest mortality has been reached, namely, an average during the last three years of 49·8 per thousand, Kew Street heading the list in this group with a three years' average of 63·8 per thousand, thus running Henry Edward Street in group 1 very close. 53 per cent. of the total deaths were of infants below 5 years of age, and 32 per cent. below 12 months of age.

With regard to the fourth group, the three years' average death-rate is 46·3. This group is on the whole, structurally and by its situation, the least objectionable, owing to the fact that in one of the streets, Shelley Street, a great deal of the surrounding insanitary property has already been demolished, opening up the remainder.

The whole of the districts have been scavenged at least once a day, and oftener if necessary.

The flushing of the trough closets is under the supervision of a corporation servant.

In each of the groups of property, a few cottages are to be met with to which the general description does not apply. These isolated examples have been kept in good external repair, and in two or three instances the owner had made structural alterations since the date of the report, and renovated the property in a manner which has led to improvement. Other owners subsequently expressed their willingness to alter the property, as far as it can possibly be altered, to meet requirements of existing bye-laws.

In most of these few exceptional cases, the houses were so hemmed in by surrounding courts that the suggested alterations were not adequate, even if the property surrounding them were pulled down and the site left as an open space.

The Parks and Gardens Committee, with the desire to brighten the homes of the poorer citizens, distributed some thousands of flowering plants to be placed in the windows in the poorer quarters of the City, but their head gardener would not advise them to select a single one of the houses or courts now presented as likely or suitable places for the growth of plants. The courts more especially, were not thought suitable for growing plants, and although they have been frequently inspected with this object, they have been passed over each time for the same reason.

THE FOLLOWING TABLES GIVE DETAILED STATISTICS OF THE PROPERTY DEALT WITH, AND ALSO INDICATE, FOR PURPOSES OF COMPARISON, THE RATES OF MORTALITY IN THE MODERN ARTIZANS' DWELLINGS:—

STREET.	Group I.					Average of last 3 years.
	Population.	Deaths, 1896-7.	Rate per 1000.	Deaths, 1897-8.	Rate per 1000.	Deaths, 1898-9.
Lace	288	16	55.5	14	48.6	10
Adlington	569	24	42.1	15	26.3	20
Henry Edward	239	15	62.7	19	79.0	13
Bispham	261	10	38.3	7	26.8	9
Fontenoy	36	2	55.5	1	27.7	1
	1393	67	48.1	56	40.2	53
					38.04	42.1

STREET.	Group II.					Average of last 3 years.
	Population.	Deaths, 1896-7.	Rate per 1000.	Deaths, 1897-8.	Rate per 1000.	Deaths, 1898-9.
Smithfield	316	8	25.3	16	50.6	9
Tomlin	45	2	44.4	—	—	—
Upper Milk	19	—	—	1	—	—
	380	10	26.3	17	44.7	9
					23.6	31.5

Group III.

STREET.	Population.	Deaths, 1896-7.	Rate per 1000.	Deaths, 1897-8.	Rate per 1000.	Deaths, 1898-9.	Rate per 1000.	Average of last 3 years.
Newsham ...	196	12	61.2	11	56.1	5	25.5	47.6
Kew ...	303	15	49.5	17	56.1	26	85.8	63.8
Bostock ...	191	5	26.2	9	47.1	8	41.8	38.3
Woodstock ...	179	3	16.7	10	56.0	9	50.2	40.9
	869	35	40.2	47	54.1	48	55.2	49.8

Group IV.

STREET.	Population.	Deaths, 1896-7.	Rate per 1000.	Deaths, 1897-8.	Rate per 1000.	Deaths, 1898-9.	Rate per 1000.	Average of last 3 years.
Clive ...	81	6	74.1	3	37.0	5	61.7	57.5
Shelley ...	290	16	55.0	9	31.0	12	41.3	42.4
Rutter ...	46	2	43.5	2	43.5	3	65.2	50.7
	417	24	57.5	14	33.5	20	47.9	46.3
<i>Total of the 4 Groups...</i>	3059	136	44.4	134	43.8	130	42.5	43.6

VICTORIA SQUARE AND JUVENAL BUILDINGS.

DEATH RATE.

POPULATION 1563.

<u>Year.</u>		<u>Deaths.</u>		<u>Rate.</u>
1896	...	33	...	21·1 per 1000
1897	...	30	...	19·1 „
1898	..	37	...	23·6 „
		Average	...	21·2 „

Average death rate of added areas during the above three years ... 14·3

Average death rate of whole City during the above three years ... 22·5

With regard to the number of insanitary houses still remaining, the houses which from their arrangement and construction are insanitary, admit of classification upon the two following lines:—

Class I. includes houses, arranged in courts, built *subsequent to* 1842, and which are in accordance with the Liverpool Building Act of that year 15 feet wide throughout, excepting where narrowed by privies and ashpits at the entrance.

Class II. includes houses, arranged in courts, erected *prior to* 1842, and which are less than 15 feet wide throughout, the average width being about 10 feet. These include the oldest class of court property, and much of it appears on maps published at the beginning of this century; they represent property erected before any building regulations or bye-laws were in force, or the need for their provisions appreciated.

In both classes there may be found, though rarely, houses having separate means of access by a side or back door either to the common court or to a small yard, big enough for a water-closet or even an ashpit. This circumstance is of no sanitary advantage, and the Medical Officer does not think it necessary to further differentiate them into a third class.

With regard to the actual number of these houses now existing, in 1890 the Medical Officer caused a permanent record to be made, showing particulars of every court existing in the City at that date. From time to time this record has been revised, and such of the property as has been demolished duly noted.

The diminution of the amount of court property is due to the following agencies, viz. :—

(a) The operations of the Insanitary Property Committee.

(b) The demolition of courts for the extension of business premises, warehouses, &c.

(c) The demolition or walling-up of courts which have become so dilapidated as to be in danger of falling, and which have been dealt with by the City Engineer or Building Surveyor, or have been taken down by the owners.

During the last five years 285 houses have been closed by the City Engineer or Building Surveyor, on account of being in danger of falling.

In November last a further careful survey was made of existing courts, and the following tables may be taken to show the number of courts and the number of insanitary houses standing to-day, in addition to those included in, and ordered to be demolished under, the 16th Presentment :—

UNDER CLASS I. :—

Courts.	Court Houses.	Front Houses adjoining Courts.	Total.
83	606	144	750

UNDER CLASS II. (approximately) :—

Courts.	Court Houses.	Front Houses adjoining Courts.	Total.
1,071	5,765	1,669	7,434

No doubt a few houses have been demolished since November under agencies alluded to other than the Insanitary Property Committee, but the number would be small, and can have no appreciable effect upon the totals.

There is room for divergence of opinion as to the best manner of dealing with the remaining insanitary areas in the City; it will be obvious that owing to the widely different conditions in regard to the shape, character and surroundings of the areas occupied by insanitary property, that an Act which may with advantage be applied in one case would not be applicable in others.

Under the Public Health Act the closure can be effected of those isolated insanitary houses, the site of which is insufficient for the re-erection of any dwellings in conformity with sanitary requirements. Houses surrounded and shut in by tall warehouses, or situated upon a narrow strip of land, may be so dealt with.

Court No. 1 in Lancelots Hey, and Cherry Lane, may be taken to illustrate these conditions. It does not appear, however, even in such cases as these, that except in promptness of action the Public Health Act presents any advantages over the Liverpool Sanitary Amendment Act; indeed, while one leads only to closure, the other results in demolition. In exceptional cases of gross insanitation and extreme nuisance, notices have been served under the Public Health Act to close dwellings, and about 45 such notices were served last year; but it is plain that anything like extensive proceedings of this kind would be in antagonism to the objects of the Insanitary Property Committee, and would not promote the ultimate objects in view, viz., the rehousing under sanitary conditions of the labouring classes.

The question therefore resolves itself into a comparison of the relative advantages offered by the Liverpool Sanitary Amendment Act, and by the Housing of the Working Classes Act. As a rule, whatever difficulties may have been encountered under the Liverpool Sanitary Amendment Act in obtaining sites for the erection of labourers' dwellings and the necessary adjuncts thereto, such as playgrounds, baths, &c., these difficulties have been overcome to a very great extent. At the same time there are conspicuous examples of the retention of obstructive and objectionable buildings adjacent to, or in the midst of, the site dealt with under this Act, and upon which dwellings have been erected, such, for example, as the fat-melting establishment in Cavendish Street, the slaughter-house in Cotter Street, as well as other dilapidated buildings used apparently as sheds in the same vicinity, or the retention of a milkshop and a public house in Fontenoy Street. From a sanitary

point of view, it would be better if all of these places had been removed, and under the Housing of the Working Classes Act their removal might have been effected. It would appear, therefore, that some sites may be most advantageously dealt with under the Housing of the Working Classes Act, but that there are other cases in which, assuming the owners will sell the sites, the Liverpool Sanitary Amendment Act would best meet the requirements, the broad distinction being that in the one case court property is largely in excess of any other kind, and occupies almost the whole of the site, whilst in other instances the court property is in smaller and more isolated groups, and presents but small and relatively unimportant sites upon which rebuilding would be possible.

As illustrations of sites suitable for the operations of the Housing of the Working Classes Act, may be mentioned an area which comprises Cuerden Street, St. Stephen Street, and a small part of Clayton Street. Here, close to the new Technical Buildings, is a small but central site at a good elevation, now encumbered with filthy and insanitary back-to-back houses; from long-continued neglect many of them are tenantless, some actually in ruins, whilst those which still harbour human beings exercise every degrading influence which insanitary and vicious construction can bring to bear.

Not far off, the insanitary condition of two other groups, viz., Baptist Lane, Baptist Street and Lionel Street arrests attention; probably the Liverpool Sanitary Amendment Act will be applicable here, since it is extremely doubtful whether the site when cleared will be suitable for more than a very limited amount of rebuilding, unless a considerable amount of the adjacent property is also demolished, and the extra site incorporated.

The area lying between Mansfield Street, Torbock Street, Wakefield Street, and Atkinson Street; and

The area bounded by parts of Raymond Street, Titchfield Street, Tatlock Street, and Vescock Street also appear to be suitable ones to be dealt with under the Housing of the Working Classes Act, since the greater part of these areas is occupied by dwellings unfit for human habitation.

As an example of an area in which further considerations are involved, Saltney Street may be instanced. This represents a fairly large and very valuable site, upon which are a large number of insanitary houses, nearly all of which are respectably tenanted. The site, however, is low-lying and somewhat closed in, and owing to these circumstances could not be *recommended* for selection in connection with a scheme of reconstruction.

There are many instances in which small congested insanitary areas are being gradually replaced by the extension of business premises, warehouses, &c.; this growth of commercial requirements has in some cases entirely altered the character of the districts, and while it has enhanced the value of the site for business purposes has lessened its suitability for dwellings. It may no doubt be physically possible to erect suitable cottages, each with through ventilation and open yard-space upon some of these sites, yet the fact that warehouses tower above them, obstructing ventilation and curtailing the amount of light and sunshine, render them far less desirable than cottages of equal character in the outskirts. The Medical Officer would again take occasion to express his belief that the best interests of the labouring classes—those for whose benefit the work is undertaken—will be served by housing them, so far as circumstances will permit, in more open localities in the suburbs. It is generally considered that the dwellings intended to replace the insanitary ones, should be provided upon the original site or in the immediate vicinity, in order that the occupants may not be removed to a distance from their work. It is incorrect, however, to assume that the occupants of congested insanitary areas *are* living near their work; as often as not, they work at very considerable distances away, and hence the removal from those districts would in many cases be advantageous not only from the sanitary but the business point of view. The projected advances in the means of locomotion between the centre and the outskirts of the City will shortly place within the reach of the labouring classes the advantages of living away from the congested centres of the City, and at the same time being within easy and cheap access of their work, wherever it may be. The unfortunate apathy and helplessness of a large proportion of the class to be dealt with are sufficiently well known, and suggest that another incidental benefit from residence in the outskirts will be the removal of the labouring population and their families from the temptations inseparable from the circumstance that their present insanitary dwellings

are, as a rule, situated where the public houses are far too numerous. The extreme squalor and degradation, the gross and painful evidences of parental neglect, the poverty, misery, and disease associated with intemperance need no emphasis. The advantages of removal from influences which paralyse the best intentioned efforts, sanitary or other, cannot be lost sight of.

SIXTEENTH PRESENTMENT.

The houses included in the Sixteenth Presentment are as follows:—

The court known as No. 4 court in SMITHFIELD STREET, in the City of Liverpool.

The dwelling-houses numbered 1 and 2 in the said No. 4 court.

The dwelling-houses numbered 38 and 40 in SMITHFIELD STREET aforesaid, contiguous to No. 4 court in the said street.

The court known as No. 8 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2 and 3 in the said No. 8 court.

The dwelling-houses numbered 46 and 48 in SMITHFIELD STREET aforesaid, contiguous to No. 8 court in the said street.

The dwelling-house numbered 19 in UPPER MILK STREET, in the City of Liverpool, contiguous to No. 8 court in SMITHFIELD STREET.

The court known as No. 10 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 10 court.

The dwelling-houses numbered 50 and 52 in SMITHFIELD STREET aforesaid, contiguous to No. 10 court in the said street.

The dwelling-houses numbered 21 and 23 in UPPER MILK STREET, in the City of Liverpool, contiguous to No. 10 court in SMITHFIELD STREET.

The court known as No. 12 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 12 court.

The dwelling-houses numbered 54 and 56 in SMITHFIELD STREET aforesaid, contiguous to No. 12 court in the said street.

The court known as No. 14 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 14 court.

The dwelling-houses numbered 58, 60, 62 and 64 in SMITHFIELD STREET aforesaid, contiguous to No. 14 court in the said street.

The court known as No. 11 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 11 court.

The court known as No. 13 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 13 court.

The dwelling-houses numbered 29, 31, 33 and 35 in SMITHFIELD STREET aforesaid, contiguous to No. 13 court in the said street.

The court known as No. 15 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 15 court.

The dwelling-houses numbered 39 and 41 in SMITHFIELD STREET aforesaid, contiguous to No. 15 court in the said street.

The court known as No. 17 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 17 court.

The dwelling-houses numbered 45, 47, 49 and 51 in SMITHFIELD STREET aforesaid, contiguous to No. 17 court in the said street.

The court known as No. 19 court in SMITHFIELD STREET aforesaid.

The dwelling-houses numbered 1, 2 and 3 in the said No. 19 court.

The dwelling-houses numbered 53 and 55 in SMITHFIELD STREET aforesaid, contiguous to No. 19 court in the said street.

The court known as No. 2 court in LACE STREET in the City of Liverpool.

The dwelling-houses numbered 1 and 3 in the said No. 2 court.

The dwelling-houses numbered 14 and 16 in LACE STREET aforesaid, contiguous to No. 2 court in the said street.

The court known as No. 4 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 4 court.

The dwelling-houses numbered 18 and 20 in LACE STREET aforesaid, contiguous to No. 4 court in the said street.

The court known as No. 6 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 6 court.

The dwelling-houses numbered 22 and 24 in LACE STREET aforesaid, contiguous to No. 6 court in the said street.

The court known as No. 8 court in LACE STREET aforesaid.

The dwelling-house numbered 1 in the said No. 8 court.

The dwelling-house numbered 26 in LACE STREET aforesaid, contiguous to No. 8 court in the said street.

The court known as No. 10 court in LACE STREET aforesaid.

The dwelling-houses numbered 3 and 4 in the said No. 10 court.

The dwelling-houses numbered 28, 30 and 36 LACE STREET aforesaid, contiguous to No. 10 court in the said street.

The court known as No. 14 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 14 court.

The dwelling-houses numbered 42 and 44 in LACE STREET aforesaid, contiguous to No. 14 court in the said street.

The court known as No. 16 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 16 court.

The dwelling-houses numbered 46 and 48 in LACE STREET aforesaid, contiguous to No. 16 court in the said street.

The court known as No. 18 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 18 court.

The dwelling-houses numbered 50 and 52 in LACE STREET aforesaid, contiguous to No. 18 court in the said street.

The court known as No. 1 court in LACE STREET aforesaid.

The dwelling-house numbered 2 in the said No. 1 court.

The dwelling-house numbered 3 in LACE STREET aforesaid, contiguous to No. 1 court in the said street.

The court known as No. 3 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 3 court.

The dwelling-houses numbered 5 and 7 in LACE STREET aforesaid, contiguous to No. 3 court in the said street.

The court known as No. 5 court in LACE STREET aforesaid.

The dwelling-house numbered 2 in the said No. 5 court.

The dwelling-house numbered 11 in LACE STREET aforesaid, contiguous to No. 5 court in the said street.

The court known as No. 7 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 7 court.

The dwelling-houses numbered 13 and 15 in LACE STREET aforesaid, contiguous to No. 7 court in the said street.

The court known as No. 13 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 13 court.

The dwelling-houses numbered 23, 25 and 27 in LACE STREET aforesaid, contiguous to No. 13 court in the said street.

The court known as No. 15 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 15 court.

The dwelling-houses numbered 29 and 31 in LACE STREET aforesaid, contiguous to No. 15 court in the said street.

The court known as No. 17 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 17 court.

The dwelling-houses numbered 33 and 35 in LACE STREET aforesaid, contiguous to No. 17 court in the said street.

The court known as No. 19 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 19 court.

The dwelling-houses numbered 37 and 39 in LACE STREET aforesaid, contiguous to No. 19 court in the said street.

The court known as No. 21 court in LACE STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 21 court.

The dwelling-houses numbered 41 and 43 in LACE STREET aforesaid, contiguous to No. 21 court in the said street.

The court known as No. 5 court in FONTENOY STREET in the City of Liverpool.

The dwelling-houses numbered 2 and 4 in the said No. 5 court.

The dwelling-house numbered 63 in FONTENOY STREET aforesaid, contiguous to No. 5 court in the said street.

The court known as No. 7 court in FONTENOY STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 7 court.

The dwelling-house numbered 65 in FONTENOY STREET aforesaid, contiguous to No. 7 court in the said street.

The court known as No. 2 court in ADLINGTON STREET in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3, 4 and 5 in the said No. 2 court.

The dwelling-houses numbered 6 and 8 in ADLINGTON STREET aforesaid, contiguous to No. 2 court in the said street.

The court known as No. 4 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 6, 7 and 8 in the said No. 4 court.

The dwelling-houses numbered 10 and 12 in ADLINGTON STREET aforesaid, contiguous to No. 4 court in the said street.

The court known as No. 6 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 5 and 6 in the said No. 6 court.

The dwelling-houses numbered 14 and 16 in ADLINGTON STREET aforesaid, contiguous to No. 6 court in the said street.

The court known as No. 8 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 8 court.

The dwelling-houses numbered 18 and 20 in ADLINGTON STREET aforesaid, contiguous to No. 8 court in the said street.

The court known as No. 10 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 10 court.

The dwelling-houses numbered 22 and 24 in ADLINGTON STREET aforesaid, contiguous to No. 10 court in the said street.

The court known as No. 12 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 3 and 4 in the said No. 12 court.

The dwelling-houses numbered 26 and 28 in ADLINGTON STREET aforesaid, contiguous to No. 12 court in the said street.

The court known as No. 14 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 14 court.

The dwelling-houses numbered 30, 32, 34 and 36 in ADLINGTON STREET aforesaid, contiguous to No. 14 court in the said street.

The court known as No. 16 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 16 court.

The dwelling-houses numbered 38, 40, 42 and 44 in ADLINGTON STREET aforesaid, contiguous to No. 16 court in the said street.

The court known as No. 18 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 18 court.

The dwelling-houses numbered 46 and 48 in ADLINGTON STREET aforesaid, contiguous to No. 18 court in the said street.

The court known as No. 20 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2 and 3 in the said No. 20 court.

The dwelling-house numbered 50 in ADLINGTON STREET aforesaid, contiguous to No. 20 court in the said street.

The court known as No. 1 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4 and 5 in the said No. 1 court.

The dwelling-houses numbered 3 and 5 in ADLINGTON STREET aforesaid, contiguous to No. 1 court in the said street.

The dwelling-houses numbered 4 and 6 in HENRY EDWARD STREET in the city aforesaid, contiguous to No. 1 court in ADLINGTON STREET.

The court known as No. 3 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 3 court.

The dwelling-houses numbered 7 and 9 in ADLINGTON STREET aforesaid, contiguous to No. 3 court in the said street.

The court known as No. 5 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 5 court.

The dwelling-houses numbered 11 and 13 in ADLINGTON STREET aforesaid, contiguous to No. 5 court in the said street.

The court known as No. 7 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 7 court.

The dwelling-houses numbered 15 and 17 in ADLINGTON STREET aforesaid, contiguous to No. 7 court in the said street.

The court known as No. 9 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 9 court.

The dwelling-houses numbered 19 and 21 in ADLINGTON STREET aforesaid, contiguous to No. 9 court in the said street.

The court known as No. 11 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 11 court.

The dwelling-houses numbered 23 and 25 in ADLINGTON STREET aforesaid, contiguous to No. 11 court in the said street.

The court known as No. 13 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 13 court.

The dwelling-houses numbered 27 and 29 in ADLINGTON STREET aforesaid, contiguous to No. 13 court in the said street.

The court known as No. 15 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 15 court.

The dwelling-houses numbered 31 and 33 in ADLINGTON STREET aforesaid, contiguous to No. 15 court in the said street.

The court known as No. 17 court in ADLINGTON STREET aforesaid

The dwelling-houses numbered 1 and 2 in the said No. 17 court.

The dwelling-houses numbered 35 and 37 in ADLINGTON STREET aforesaid, contiguous to No. 17 court in the said street.

The court known as No. 19 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 19 court.

The dwelling-houses numbered 39 and 41 in ADLINGTON STREET aforesaid, contiguous to No. 19 court in the said street.

The court known as No. 21 court in ADLINGTON STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 21 court.

The dwelling-houses numbered 43 and 45 in ADLINGTON STREET aforesaid, contiguous to No. 21 court in the said street.

The court known as No. 8 court in HENRY EDWARD STREET, in the City of Liverpool.

The dwelling-house numbered 1 in the said No. 8 court.

The dwelling-house numbered 26 in HENRY EDWARD STREET aforesaid, contiguous to No. 8 court in the said street.

The court known as No. 10 court in HENRY EDWARD STREET aforesaid.

The dwelling-house numbered 2 in the said No. 10 court.

The dwelling-house numbered 28 in HENRY EDWARD STREET aforesaid, contiguous to No. 10 court in the said street.

The court known as No. 14 court in HENRY EDWARD STREET aforesaid.

The dwelling-house numbered 1 in the said No. 14 court.

The dwelling-house numbered 38 in HENRY EDWARD STREET aforesaid, contiguous to No. 14 court in the said street.

The court known as No. 16 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 16 court.

The dwelling-houses numbered 40 and 42 in HENRY EDWARD STREET aforesaid, contiguous to No. 16 court in the said street.

The court known as No. 18 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 18 court.

The dwelling-houses numbered 44 and 46 in HENRY EDWARD STREET aforesaid, contiguous to No. 18 court in the said street.

The court known as No. 20 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 20 court.

The dwelling-houses numbered 48 and 50 in HENRY EDWARD STREET aforesaid, contiguous to No. 20 court in the said street.

The court known as No. 1 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 1 court.

The dwelling-houses numbered 3 and 5 in HENRY EDWARD STREET aforesaid, contiguous to No. 1 court in the said street.

The court known as No. 3 court in HENRY EDWARD STREET aforesaid

The dwelling-houses numbered 1 and 2 in the said No. 3 court.

The dwelling-houses numbered 7, 9 and 11 in HENRY EDWARD STREET aforesaid, contiguous to No. 3 court in the said street.

The court known as No. 5 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 5 court.

The dwelling-houses numbered 13 and 15 in HENRY EDWARD STREET aforesaid, contiguous to No. 5 court in the said street.

The court known as No. 7 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 7 court.

The dwelling-houses numbered 17 and 19 in HENRY EDWARD STREET aforesaid, contiguous to No. 7 court in the said street.

The court known as No. 9 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 9 court.

The dwelling-houses numbered 21 and 23 in HENRY EDWARD STREET aforesaid, contiguous to No. 9 court in the said street.

The court known as No. 17 court in HENRY EDWARD STREET aforesaid.

The dwelling-house numbered 1 in the said No. 17 court.

The dwelling-houses numbered 37, 39 and 41 in HENRY EDWARD STREET aforesaid, contiguous to No. 17 court in the said street.

The court known as No. 19 court in HENRY EDWARD STREET aforesaid.

The dwelling-house numbered 2 in the said No. 19 court.

The dwelling-houses numbered 43 and 45 in HENRY EDWARD STREET aforesaid, contiguous to No. 19 court in the said street.

The court known as No. 21 court in HENRY EDWARD STREET aforesaid.

The dwelling-house numbered 1 in the said No. 21 court.

The dwelling-houses numbered 47 and 49 in HENRY EDWARD STREET aforesaid, contiguous to No. 21 court in the said street.

The court known as No. 23 court in HENRY EDWARD STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 23 court.

The dwelling-houses numbered 51, 53 and 55 in HENRY EDWARD STREET aforesaid, contiguous to No. 23 court in the said street.

The court known as No. 25 court in HENRY EDWARD STREET aforesaid.

The dwelling-house numbered 2 in the said No. 25 court.

The dwelling-house numbered 59 in HENRY EDWARD STREET aforesaid, contiguous to No. 25 court in the said street.

The court known as No. 4 court in BISPHAM STREET, in the said City.

The dwelling-house numbered 5 in the said No. 4 court.

The dwelling-houses numbered 8, 10 and 12 BISPHAM STREET aforesaid, contiguous to No. 4 court in the said street.

The court known as No. 6 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 1, 2 and 6 in the said No. 6 court.

The dwelling-houses numbered, 14, 16 and 18 in BISPHAM STREET aforesaid, contiguous to No. 6 court in the said street.

The court known as No. 8 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 8 court.

The dwelling-houses numbered 20 and 22 in BISPHAM STREET aforesaid, contiguous to No. 8 court in the said street.

The court known as No. 10 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 8 and 9 in the said No. 10 court.

The dwelling-houses numbered 24, 26, 28 and 30 in BISPHAM STREET aforesaid, contiguous to No. 10 court in the said street.

The court known as No. 12 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 8 and 9 in the said No. 12 court.

The dwelling-houses numbered 32, 34, 36 and 38 in BISPHAM STREET aforesaid, contiguous to No. 12 court in the said street.

The court known as No. 14 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 8 and 9 in the said No. 14 court.

The dwelling-houses numbered 40, 42, 44 and 46 in BISPHAM STREET aforesaid, contiguous to No. 14 court in the said street.

The court known as No. 16 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 1 and 4 in the said No. 16 court.

The dwelling-houses numbered 48 and 50 in BISPHAM STREET aforesaid, contiguous to No. 16 court in the said street.

The court known as No. 18 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 18 court.

The dwelling-houses numbered 52 and 54 in BISPHAM STREET aforesaid, contiguous to No. 18 court in the said street.

The court known as No. 20 court in BISPHAM STREET aforesaid.

The dwelling-houses numbered 3 and 4 in the said No. 20 court.

The dwelling-houses numbered 56 and 58 in BISPHAM STREET aforesaid, contiguous to No. 20 court in the said street.

The dwelling-houses numbered 83 and 85 in FONTENOY STREET, in the City of Liverpool, contiguous to No. 20 court in BISPHAM STREET.

The court known as No. 2 court in WOODSTOCK STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 2 court.

The dwelling-houses numbered 2 and 4 in WOODSTOCK STREET aforesaid, contiguous to No. 2 court in the said street.

The court known as No. 7 court in WOODSTOCK STREET aforesaid.

The dwelling-houses numbered 2 and 4 in the said No. 7 court.

The dwelling-house numbered 17 in WOODSTOCK STREET aforesaid, contiguous to No. 7 court in the said street.

The court known as No. 9 court in WOODSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 9 court.

The dwelling-houses numbered 19 and 21 in WOODSTOCK STREET aforesaid, contiguous to No. 9 court in the said street.

The court known as No. 13 court in WOODSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 13 court.

The dwelling-houses numbered 27 and 29 in WOODSTOCK STREET aforesaid, contiguous to No. 13 court in the said street.

The court known as No. 15 court in WOODSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 15 court.

The dwelling-houses numbered 35 and 37 in WOODSTOCK STREET aforesaid, contiguous to No. 15 court in the said street.

The court known as No. 17 court in WOODSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4 and 5 in the said No. 17 court.

The dwelling-house numbered 39 in WOODSTOCK STREET aforesaid, contiguous to No. 17 court in the said street.

The court known as No. 3 court in NEWSHAM STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 3 court.

The dwelling-houses numbered 27 and 29 in NEWSHAM STREET aforesaid, contiguous to No. 3 court in the said street.

The court known as No. 5 court in NEWSHAM STREET aforesaid.

The dwelling-houses numbered 1, 2 and 3 in the said No. 5 court.

The dwelling-houses numbered 31 and 33 in NEWSHAM STREET aforesaid, contiguous to No. 5 court in the said street.

The court known as No. 7 court in NEWSHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 7 court.

The dwelling-houses numbered 35 and 37 in NEWSHAM STREET aforesaid, contiguous to No. 7 court in the said street.

The court known as No. 9 court in NEWSHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 9 court.

The dwelling-houses numbered 39 and 41 in NEWSHAM STREET aforesaid, contiguous to No. 9 court in the said street.

The court known as No. 11 court in NEWSHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 11 court.

The dwelling-houses numbered 43 and 45 in NEWSHAM STREET aforesaid, contiguous to No. 11 court in the said street.

The court known as No. 13 court in NEWSHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 13 court.

The dwelling-houses numbered 47 and 49 in NEWSHAM STREET aforesaid, contiguous to No. 13 court in the said street.

The court known as No. 17 court in NEWSHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 17 court.

The dwelling-houses numbered 55 and 57 in NEWSHAM STREET aforesaid, contiguous to No. 17 court in the said street.

The court known as No. 2 court in NEWSHAM STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 2 court.

The dwelling-houses numbered 36 and 38 in NEWSHAM STREET aforesaid, contiguous to No. 2 court in the said street.

The court known as No. 2 court in KEW STREET, in the City of Liverpool.

The dwelling-houses numbered 1 and 2 in the said No. 2 court.

The dwelling-houses numbered 20 and 22 in KEW STREET aforesaid, contiguous to No. 2 court in the said street.

The court known as No. 4 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 4 court.

The dwelling-houses numbered 24 and 26 in KEW STREET aforesaid, contiguous to No. 4 court in the said street.

The court known as No. 6 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 6 court.

The dwelling-houses numbered 28 and 30 in KEW STREET aforesaid, contiguous to No. 6 court in the said street.

The court known as No. 8 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 8 court.

The dwelling-houses numbered 32 and 34 in KEW STREET aforesaid, contiguous to No. 8 court in the said street.

The court known as No. 10 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 10 court.

The dwelling-houses numbered 36 and 38 in KEW STREET aforesaid, contiguous to No. 10 court in the said street.

The court known as No. 12 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 12 court.

The dwelling-houses numbered 40 and 42 in KEW STREET aforesaid, contiguous to No. 12 court in the said street.

The court known as No. 9 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 9 court.

The dwelling-houses numbered 33 and 35 in KEW STREET aforesaid, contiguous to No. 9 court in the said street.

The court known as No. 11 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 11 court.

The dwelling-houses numbered 37 and 39 in KEW STREET aforesaid, contiguous to No. 11 court in the said street.

The court known as No. 13 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 13 court.

The dwelling-houses numbered 41 and 43 in KEW STREET aforesaid, contiguous to No. 13 court in the said street.

The court known as No. 15 court in KEW STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 15 court.

The dwelling-houses numbered 45 and 47 in KEW STREET aforesaid, contiguous to No. 15 court in the said street.

The court known as No. 1 court in BOSTOCK STREET, in the City of Liverpool.

The dwelling-houses numbered 2 and 4 in the said No. 1 court.

The dwelling-house numbered 7 in BOSTOCK STREET aforesaid, contiguous to No. 1 court in the said street.

The court known as No. 3 court in BOSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2 and 3 in the said No. 3 court.

The dwelling-houses numbered 9 and 11 in BOSTOCK STREET aforesaid, contiguous to No. 3 court in the said street.

The court known as No. 9 court in BOSTOCK STREET aforesaid.

The dwelling-house numbered 1 in the said No. 9 court.

The dwelling-house numbered 29 in BOSTOCK STREET aforesaid, contiguous to No. 9 court in the said street.

The court known as No. 11 court in BOSTOCK STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 11 court.

The dwelling-houses numbered 31 and 33 in BOSTOCK STREET aforesaid, contiguous to No. 11 court in the said street.

The court known as No. 13 court in BOSTOCK STREET aforesaid.

The dwelling-houses numbered 1 and 2 in the said No. 13 court.

The dwelling-houses numbered 35, 37 and 39 in BOSTOCK STREET aforesaid, contiguous to No. 13 court in the said street.

The court known as No. 19 court in BOSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2 and 3 in the said No. 19 court.

The dwelling-house numbered 55 in BOSTOCK STREET aforesaid, contiguous to No. 19 court in the said street.

The court known as No. 21 court in BOSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 21 court.

The dwelling-houses numbered 57 and 59 in BOSTOCK STREET aforesaid, contiguous to No. 21 court in the said street.

The court known as No. 23 court in BOSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in the said No. 23 court.

The dwelling-houses numbered 61 and 63 in BOSTOCK STREET aforesaid, contiguous to No. 23 court in the said street.

The court known as No. 25 court in BOSTOCK STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 25 court.

The dwelling-houses numbered 65 and 67 in BOSTOCK STREET aforesaid, contiguous to No. 25 court in the said street.

The court known as No. 3 court in CLIVE STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 3 court.

The dwelling-houses numbered 29 and 31 in CLIVE STREET aforesaid, contiguous to No. 3 court in the said street.

The court known as No. 2 court in SHELLEY STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 2 court.

The dwelling-houses numbered 2 and 4 in SHELLEY STREET aforesaid, contiguous to No. 2 court in the said street.

The dwelling-houses numbered 24, 26, 28, 30 and 32 in RUTTER STREET, in the City of Liverpool, contiguous to No. 2 court in SHELLEY STREET.

The court known as No. 4 court in SHELLEY STREET aforesaid.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 4 court.

The dwelling-houses numbered 6 and 8 in SHELLEY STREET aforesaid, contiguous to No. 4 court in the said street.

The court known as No. 6 court in SHELLEY STREET aforesaid.

The dwelling-houses numbered 2, 4, 6 and 8 in the said No. 6 court.

The dwelling-house numbered 10 in SHELLEY STREET aforesaid, contiguous to No. 6 court in the said street.

The court known as No. 10 court in SHELLEY STREET aforesaid.

The dwelling-houses numbered 1, 3, 5, 7, 9, 11, 13, 15 and 17 in the said No. 10 court.

The dwelling-house numbered 26 in SHELLEY STREET aforesaid, contiguous to No. 10 court in the said street.

The dwelling-house numbered 47 in CLIVE STREET, in the City of Liverpool, contiguous to No. 10 court in SHELLEY STREET.

The court known as No. 12 court in SHELLEY STREET aforesaid.

The dwelling-houses numbered 2, 4, 6, 8, 10, 12, 14, 16 and 18 in the said No. 12 court.

The dwelling-house numbered 28 in SHELLEY STREET aforesaid, contiguous to No. 12 court in the said street.

The dwelling-house numbered 49 in CLIVE STREET aforesaid, contiguous to No. 12 court in SHELLEY STREET.

The dwelling-houses numbered 1, 2, 3, 4, 5 and 6 in TOMLIN STREET, in the City of Liverpool.

The dwelling-houses numbered 29, 31, 33 and 35 in HENRY EDWARD STREET, in the said City.

The dwelling-houses numbered 14, 16, 18, 20 and 22 in RUTTER STREET, in the said City.

In addition to the foregoing dealt with by presentment, the Medical Officer of Health certified that the following premises were unfit for human habitation and ought to be demolished. These reports were laid before the Council, and referred to the Insanitary Property Committee, who purchased the property, and caused it to be demolished:—

The court known as No. 3 court in LORTON STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7 and 8 in the said No. 3 court.

The court known as No. 11 court in BLACKSTOCK STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6 and 7 in the said No. 11 court.

The court known as No. 13 court in BLACKSTOCK STREET, in the said City.

The dwelling-houses numbered 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14 in the said No. 13 court.

The court known as No. 3 court in ENNERDALE STREET, in the City of Liverpool.

The dwelling-house numbered 2 in the said No. 3 court.

The dwelling-house numbered 13 in ENNERDALE STREET aforesaid, contiguous to No. 3 court in the said street.

The court known as No. 18 court in COLLINGWOOD STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20 in the said No. 18 court.

The dwelling-houses numbered 58 and 60 in COLLINGWOOD STREET aforesaid, contiguous to No. 18 court in the said street.

The court known as No. 13 court in BLENHEIM STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 3, 4, 5, 6, 7, 8 and 10 in the said No. 13 court.

The dwelling-houses numbered 27, 29 and 31 in BLENHEIM STREET aforesaid, contiguous to No. 13 court in the said street.

The dwelling-houses numbered 153, 155, 157 and 159 in LIMEKILN LANE, in the City of Liverpool, contiguous to No. 13 court in BLENHEIM STREET.

The dwelling-house numbered 3 in MOUNT VERNON ROAD, in the City of Liverpool.

The dwelling-house numbered 9 in MOUNT VERNON ROAD aforesaid.

The court known as No. 19 court in KEMPSTON STREET, in the City of Liverpool.

The dwelling-houses numbered 2, 4, 6 and 8 in the said No. 19 court.

The dwelling-house numbered 75 in KEMPSTON STREET aforesaid, contiguous to No. 19 court in the said street.

The court known as No. 9 court in NAYLOR STREET, in the City of Liverpool.

The dwelling-houses numbered 1, 3, 5, 6, 7 and 8 in the said No. 9 court.

The premises (used as a stable) numbered 2 and 4 in the said No. 9 court.

The court known as No. 1 court in BACK QUEEN ANNE STREET, in the City of Liverpool.

The dwelling-houses numbered 1 and 2 in the said No. 1 court.

The dwelling-houses numbered 3 and 5 in BACK QUEEN ANNE STREET aforesaid, contiguous to No. 1 court in the said street.

The dwelling-houses numbered 36, 38 and 40 in FONTENOY STREET, in the said City, contiguous to No. 2 court in FONTENOY STREET aforesaid, and to No. 2 court in GRAHAM'S PLACE.

The court known as No. 15 court in BISPHAM STREET, in the said City.

The dwelling-houses numbered 2 and 4 in the said No. 15 court.

The dwelling-house numbered 49 in BISPHAM STREET aforesaid, contiguous to No. 15 court in the said street.

The dwelling-houses numbered 87, 89 and 91 in FONTENOY STREET in the said City, contiguous to No. 15 court in BISPHAM STREET.

The dwelling-houses numbered 15 and 17 in BEN JONSON STREET, in the said City.

The dwelling-houses numbered 1, 3 and 5 in KILIN STREET, in the said City.

The dwelling-houses numbered 16, 18 and 20 in DOWNE STREET, in the said City.

The court known as No. 4 court in BAPTIST STREET, in the said City.

The dwelling-houses numbered 1, 2, 3 and 4 in the said No. 4 court.

The court known as No. 2 court in ATKINSON STREET, in the said City.

The dwelling-houses numbered 2, 3, 4, 5, 6, 7 and 8 in the said No. 2 court.

The court known as No. 10 court in HENRY EDWARD STREET, in the said City.

The dwelling-house numbered 1 in the said No. 10 court.

The dwelling-house numbered 30 in HENRY EDWARD STREET aforesaid, contiguous to No. 10 court in the said street.

The court known as No. 14 court in HENRY EDWARD STREET aforesaid.

The premises used as a stable, &c., in the said No. 14 court, and at rear of No. 36 HENRY EDWARD STREET.

The premises used as a stable, &c., and numbered 36 in HENRY EDWARD STREET aforesaid, contiguous to No. 14 court in the said street.

The court known as No. 25 court in HENRY EDWARD STREET aforesaid.

The dwelling-house numbered 1 in the said No. 25 court.

The dwelling-house numbered 57 in HENRY EDWARD STREET aforesaid, contiguous to No. 25 court in the said street.

The Corporation Surveyor has kindly supplied the following tables:—

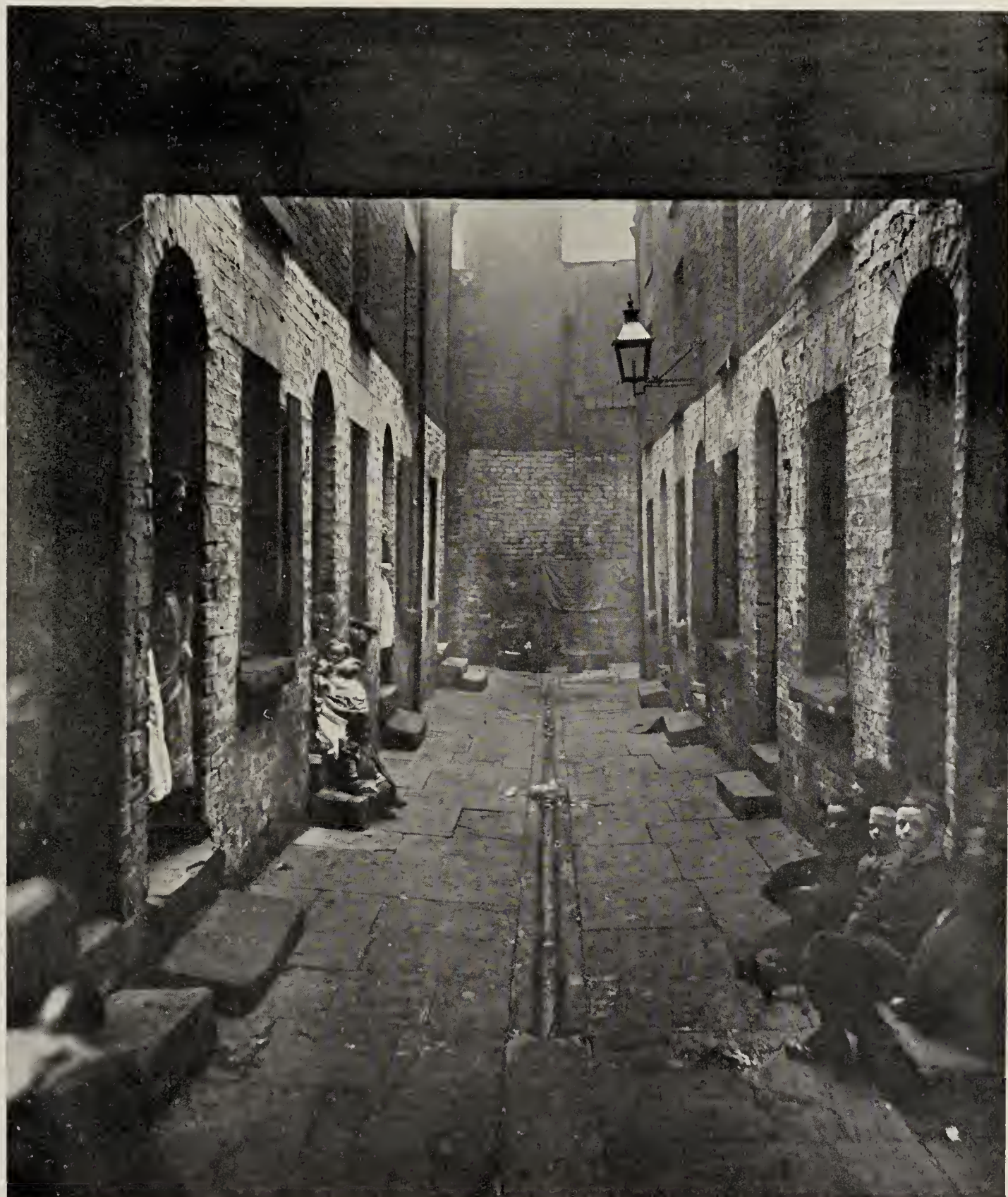
INSANITARY PROPERTY.

INSANITARY PROPERTY PURCHASED, 1899—

Number of houses included in 15th Presentment	...	...	141
„ „ 16th Presentment	...	...	32
Number of houses purchased by Insanitary Property Committee			
included in Reports referred by Council to Committee	...		29
			<hr/>
Total	...	...	202

INSANITARY PROPERTY DEMOLISHED, 1899—

Number of houses included in 14th Presentment	...	...	95
„ „ 15th Presentment	...	...	244
Number of houses demolished by Insanitary Property Committee			
included in Reports referred by Council to Committee	...		172
			<hr/>
Total	...	...	511



INSANITARY DWELLINGS.
View of a Court in Bostock Street.





INSANITARY DWELLINGS.

View of one side of a Court in Cuerden Street.



ARTISANS' DWELLINGS.

View of part of Juvenal Buildings, erected by the Corporation.



The Building Surveyor has kindly supplied the following return:—

Return of Houses taken down in Years 1895, 1896, 1897, 1898 and 1899, in consequence of notices having been sent from the Building Surveyor's Department to the effect that the buildings were so dilapidated as to be dangerous:—

1895.

Ben Jonson Street, 22 and 24.

Kew Street, 1 and 2 in 3 Court.

Fernie Street, 2, 3, 4, 5, and 6 in 1 Court.

Do. 2, 3, 4, 5 and 6 in 3 Court.

Do. 13, 15 and 17.

Fisher Street, 2 in 12 Court.

Do. 38.

Do. 2, 3, 4, 5, 6, 7 and 8 in 10 Court.

Do. 2 in 6 Court.

Wolfe Street, 143 to 165.

Carpenter's Row, 23 and 25.

Clive Street, 8 Court.

Prophet Street, 4.

Do. 1 to 11 in 2 Court.

Hughson Street, 15 and 23.

Gildarts Gardens, 10.

Norris Street, 8, 10 and 12.

Arley Street, 35.

1896.

Richmond Row, 68.

Prince Edwin Lane, 5.

Scotland Road, 65, and 1 Rose Place.

1896.—*Continued.*

Rachel Street, 55 and 57.

Do. 3 and 5 in 9 Court.

Do. 1, 2, 3, 4, 5 and 6 in 7 Court.

Dryden Street, 1 to 8 in 14 Court.

Do. 1 to 8 in 12 Court.

Do. 20 and 22.

Birkett Street, 54.

Palmerston Street, 1, 3, 5, 7 and 9.

Mason Street, 16 in 9 Court.

St. Andrew Street, 19.

Mason Street, 15 in 11 Court.

Do. 16 in 9 Court.

Pembroke Place, 2, 4, 6 and 8 in 3 Court.

Fisher Street, 2 in 8 Court.

Llanrwst Street, 4, 6 and 20.

Dexter Street, 1 and 2 in 2 Court.

Fernie Street, 18.

Kitchen Street, 31 and 33.

Shaftesbury Street, 2 in 4 Court.

Grafton Street, 11 in 25 Court.

Arley Street, 32.

Paul Street, 1, 3 and 5 in 38 Court.

Do. 90.

Tindall Street, 20 to 40.

Gascoyne Street, 2, 4, 6, 8, 10 and 12 in 11 Court.

Do. 37.

Do. 12 in 15 Court.

Do. 35.

Do. 49.

Raymond Street, 80.

1897.

Dryden Street, 42, 44, 46 and 48.

Do. 2, 3, 4 and 5, in 4 Court.

Finch Place, 1 in 3 Court.

Rachel Street, 2, 4 and 6 in 5 Court.

Do. 41, 43 and 45.

Do. 53.

Do. 2 in 10 Court.

Circus Street, 1, 3, 5, 6, 7 and 8 in 9 Court

Do. 1 in 11 Court.

Do. 25, 27 and 29.

Mansfield Street, 31.

Johnson Place, 9, and 30, Mansfield Street.

Lionel Street, 33.

Franceys Street, 1.

Brownlow Hill, 60 and 60A.

Highgate Street, 74.

Talbot Street, 17.

Stanhope Street, 8, 9, 11, 12 and 13 in 2 Court.

Richards Place, 1, 3, 5 and 7.

Cotter Street, 13.

Llanrwst Street, 1, 3 and 5 in 8 Court.

Do. 1 in 4 Court.

Brick Street, 18.

Do. 1 and 3 in 6 Court.

Do. 1 in 2 Court.

1897.—*Continued.*

Carpenter's Row, 9 and 11.

Shelley Street, 12.

Fisher Street, 2, and 31, Caryl Street.

Hill Street, 86.

Prince William Street, 3.

Gascoyne Street, 7 in 17 Court.

Do. 53 and 55.

Raymond Street, 1, 3 and 5 in 2 Court.

Addison Street, 1 in 16 Court.

Maguire Street, 32.

Do. 2 and 3 in 10 Court.

Marsh Street, 13, 15 and 17.

Lace Street, 45 and 47.

Beacon Street, 1 to 8 in 1 Court.

Stephens Lane, 9 and 11.

Westmoreland Street, 35.

Paul Street, 24 and 26.

Bispham Street, 41 and 43.

Burnet Street, 1 to 12 in 6 Court.

1898.

Downe Street [1 House.]

Dryden Street, 6 in 10 Court.

Creer Street, 6.

Pepper Street, 1 in 2 Court.

Ben Jonson Street, 2, 4 and 6 in 4 Court.

1898.—*Continued.*

Newsham Street, 1 to 6 in 15 Court.

Do. 51.

Prince Edwin Lane, 1, 2 and 3 in 1 Court.

Do. 1.

Newsham Street, 51 and 53.

Kempston Street, 4 in 15 Court.

Do. 67 and 69.

Richards Place, 6, 8 and 10.

Combermere Street, 1 in 11 Court.

Upper Harrington Street, 33.

Llanrwst Street, 7 in 6 Court.

Do. 9, 11 and 18.

Shelley Street, 21.

Cotter Street, 1 and 2 in 6 Court.

Vernon Street, 40 and 42.

1899.

St. Andrew Street, 25.

Dansie Street, 1, 3 and 5.

Perry Street, 8, 12, 14, 16 and 18.

Beaufort Street, 2 in 1 Court.

Henry Edward Street, 30 and 36.

Fontenoy Street, 37.

HOSPITAL ACCOMMODATION.

During the past year further progress has been made towards providing adequate hospital accommodation for persons suffering from infectious sickness.

Plans have been approved by the Local Government Board for the erection of smallpox wards for the accommodation of 44 patients, together with the necessary administrative offices, upon a suitable part of the site purchased for the purpose at Fazakerley.

With regard to the much-needed extension and improvement of the accommodation for patients and attendants at the City Hospital East, work is now in progress upon plans approved by the Local Government Board for the proposed addition of 88 beds for patients, and for the accommodation of the increased staff consequent upon this extension.

The present number of beds available for the various forms of infectious sickness is as follows:—

City Hospital North	...	...	...	147 beds.
„ South	...	...	...	88 „
„ East	...	...	...	42 „
„ Parkhill	...	...	...	166 „
„ Priory Road	...	...	...	37 „
				<hr/>
				480 „

These are apportioned as follows:—

Smallpox	...	...	...	...	37 beds
Typhus Fever	...	...	...	...	20 „
Typhoid Fever	...	...	...	...	75 „
Scarlet Fever	...	...	...	...	288 „
Diphtheria	...	...	...	...	30 „
Isolation	...	...	...	...	30 „
					<hr/>
					480 „

making a total of 480 beds, about 100 of which are in buildings of a temporary, and in some respects inconvenient, character, which at no distant date will require to be taken down.

The Park Hill Estate, upon which there is accommodation for 166 patients, is not the property of the Corporation, and the Hospitals Committee may at short notice be deprived of this important site.

At the lowest computation, based upon a wide experience, and embodied in the recommendations of the Local Government Board, Liverpool requires a minimum of 650 beds for ordinary infectious sickness, and 100 beds for smallpox.

It is not necessary, in the present state of public knowledge, to dwell upon the importance of hospitals as a safeguard against the extension of disease, nor to reiterate the oft-repeated story of the mischief resulting from the want of them. The benefit, however, is not confined to the general public, for it is not less great to the patient, whose chances of recovery are greater in hospital. Year by year, as the appreciation of these facts by the public becomes more apparent, the demands for admission become more urgent.

It is most interesting to notice, in the case of scarlatina (page 32), that as the proportion of cases removed to hospital has increased, the total number in the city has steadily diminished.

Inconvenience of a most serious character, resulting from the present insufficient number of beds, is always present. The Medical Officer has reported to the Hospitals Committee the great difficulty arising from inability to find accommodation for patients seeking admission to the hospitals. Many of those for whom accommodation was sought were without proper lodging and accommodation in their own homes; indeed some of these homes had actually been condemned as unfit for human habitation.

As in the preceding year, owing to the inadequate accommodation, there has been a constant apprehension of the breakdown of the system of isolation, and it is only with incessant care, and transferring patients

from one hospital to another, and carefully selecting the most urgent cases for removal, that this breakdown has been averted. Fortunately, the imported cases of smallpox were few. Had it been otherwise, it would have been necessary to send home again certain patients who were already in hospital, and the isolation of the other forms of infectious sickness would have been seriously interfered with, or prevented altogether. As it is, very grave complaints have arisen from medical men and from the friends and employers of patients, on account of the impossibility of isolating cases of serious infectious sickness. Much inconvenience to business, extension of disease, and loss of life have arisen from want of hospital room in which to isolate the sick. Throughout the year these circumstances have, from time to time, forced themselves upon the attention of the Hospitals Committee, and it will be remembered that, excepting for a very limited number of beds, the Workhouse Hospitals are very rightly closed entirely to infectious sickness, so that the onus of the provision of hospital accommodation rests solely upon the Sanitary Authority.

No accommodation has yet been provided for cases of whooping-cough, although many such urgently needed to be removed to hospital, not only in the interests of the patient, but to prevent the extension of disease.

The only available place for cases of measles is a ward at the Workhouse.

The general hospitals have admitted a certain number of cases of typhoid fever, but a very pressing urgency has again been experienced for the accommodation of diphtheria.

INFECTIOUS DISEASE.

Table showing the cases of Infectious Disease coming under the notice of the Medical Officer of Health during 1899, including those reported under the Notification Act.

YEAR—1899.	FEVER.				Small Pox.	Scarlatina.	Measles.	Diphtheria.	Membranous Group.	Puerperal Fever.	Erysipelas.	TOTAL.
	Typhus.	Typhoid.	Simple.	Relapsing.								
January	7	70	2	...	1	263	67	144	9	10	73	646
February ...	17	59	3	...	...	212	85	70	6	4	88	544
March.....	6	70	3	...	2	209	207	60	2	5	67	631
April	2	81	6	...	...	188	238	42	3	2	105	667
May.....	4	58	3	...	5	204	629	44	4	5	97	1,053
June	1	89	3	...	2	227	1,374	39	3	2	86	1,826
July .....	...	69	...	...	...	165	625	63	1	6	81	1,010
August	3	68	3	...	...	145	166	37	2	2	85	511
September ...	1	122	...	...	...	193	209	43	4	2	105	679
October	2	124	6	...	...	239	513	48	5	2	99	1,038
November ...	19	93	2	...	...	197	658	85	3	5	78	1,140
December ...	8	85	1	...	...	174	336	71	5	8	106	794
TOTAL.....	70	988	32	...	10	2,416	5,107	746	47	53	1,070	10,539
Removed to hospital...	64	668	12	...	10	1,537	140	275	2	11	263	2,984

The number of patients removed to hospital includes those taken to General Hospitals, as well as those taken to the City Hospitals. (See page 223.)

THE INFECTIOUS DISEASE (NOTIFICATION) ACT.

The numbers of notifications received by the Medical Officer under the above Act, during the past four years were as follows:—

			<u>1896.</u>		<u>1897.</u>		<u>1898.</u>		<u>1899.</u>
January	...	...	466	...	560	...	445	...	617
February	...	...	493	...	461	...	363	...	475
March	...	...	454	...	538	...	407	...	459
April	...	...	484	...	414	...	397	...	446
May	...	...	517	...	414	...	451	...	471
June	...	...	523	...	380	...	389	...	495
July	...	...	517	...	392	...	347	...	414
August	...	...	644	...	559	...	383	...	348
September	...	...	770	...	626	...	458	...	482
October	...	...	933	...	742	...	578	...	562
November	...	...	774	...	629	...	588	...	513
December	...	...	634	...	519	...	564	...	460
			<u>7,209</u>		<u>6,234</u>		<u>5,370</u>		<u>5,742</u>

The diseases were specified as follows:—

			<u>1896.</u>		<u>1897.</u>		<u>1898.</u>		<u>1899.</u>
Smallpox	...	...	11	...	7	...	16	...	17
Scarlet Fever	...	...	3,610	...	3,042	...	2,422	...	2,451
Typhoid Fever	...	...	1,122	...	1,112	...	955	...	1,064
Typhus Fever	...	...	185	...	110	...	96	...	52
Continued Fever	...	...	120	...	80	...	62	...	84
Relapsing Fever	...	...	5	...	1	...	2	...	—
Fever	...	...	26	...	18	...	14	...	19
Puerperal Fever	...	...	67	...	64	...	47	...	57
Diphtheria	...	...	492	...	394	...	527	...	798
Membranous Croup	...	...	95	...	69	...	62	...	53
Erysipelas	...	...	1,476	...	1,337	...	1,167	...	1,145
Anthrax	...	...	—	...	—	...	—	...	2
			<u>7,209</u>		<u>6,234</u>		<u>5,370</u>		<u>5,742</u>

NUMBER OF CASES REPORTED AND NUMBER REMOVED TO HOSPITALS, 1889-1899

	SMALLPOX.		SCARLET FEVER.		TYPHOID.		TYPHUS.		MEASLES	
	Number Reported.	Number Removed.	Number Reported.	Number Removed.	Number Reported.	Number Removed.	Number Reported.	Number Removed.	Number Reported.	Number Removed.
1889 ...	9	8	1,832	533	670	302	158	124	3,175	104
1890 ...	2	2	3,520	938	506	296	103	87	4,013	152
1891 ..	21	21	1,176	448	588	350	175	156	2,262	160
1892 ...	177	177	1,554	603	699	345	73	70	3,376	150
1893 ...	75	73	3,538	1,380	1,396	728	183	168	2,316	94
1894 ...	229	226	3,963	1,415	1,350	745	325	312	2,494	122
1895 ...	130	127	2,710	1,039	1,306	662	162	158	3,462	93
1896 ...	8	8	3,584	1,589	1,063	539	305	298	2,930	138
1897 ..	6	6	3,001	1,641	991	559	158	156	4,389	94
1898 ..	17	16	2,424	1 467	863	585	92	84	2,458	105
1899 ...	10	10	2,416	1,537	988	668	70	64	5,107	140

The following tables, prepared by the Medical Staff of each Hospital, show the number of patients, the nature of the illness, and the results, at each of the five City Hospitals during the year 1899 :—

CITY HOSPITAL NORTH, NETHERFIELD ROAD.

Visiting Physician, Dr. ROBERTSON.

Resident Physician, Dr. ROBINSON.

DISEASES.	Remaining Dec. 31st, 1898.	Admitted during 1899.	Total under Treatment, 1899.	Transferred to Park Hill Convalescent.	Transferred to other Hospitals.	Discharged to Homes.	Remaining Dec. 31st, 1899.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever	81	509	590	199	26	257	73	5	35	6·8
Enteric Fever.....	30	225	255	—	7	188	25	6	35	15·5
Typhus Fever	6	62	68	7	—	46	6	—	9	14·5
Diphtheria	—	4	4	—	1	—	—	1	3	75·
Other Diseases ...	3	102	105	—	8	63	8	8	26	25·4
Totals	120	902	1022	206	42	554	112	20	108	11·9

SCARLET FEVER.

	AGE PERIODS.							
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	Total.
No. of Cases	170	227	74	25	10	3	—	509
No. of Deaths	22	7	3	1	2	—	—	35
Percentage of Deaths	12·9	3	4·	4	20	—	—	6·8

ENTERIC FEVER.

	AGE PERIODS.							Total.
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	
No. of Cases	11	46	75	53	25	12	3	225
No. of Deaths	—	5	13	7	7	3	—	35
Percentage of Deaths	—	10·8	17·3	13·2	28	25	—	15·5

TYPHUS FEVER.

	AGE PERIODS.							Total.
	Under 5	5—10	10—20	20—30	30—40	40—50	50 upwards.	
No. of Cases.....	3	6	21	15	9	7	1	62
No. of Deaths	—	—	1	2	3	2	1	9
Percentage of Deaths	—	—	4·7	13·3	33·3	28·5	100	14·5

OTHER DISEASES.

Disease.	Admissions.	Total Deaths.	Deaths within 48 hours of Admission.
Measles	3	—	—
Whooping Cough	2	1	—
Influenza	2	—	—
Tuberculosis	4	4	1
Follicular Tonsillitis	2	—	—
Croupous Pneumonia	26	9	6
Bronchitis and Broncho Pneumonia	7	2	—
Pleurisy	2	—	—
Empyema	5	3	—
Meningitis	7	4	1
Cerebral Abscess	1	1	—
Diseases of Digestive System ...	6	—	—
„ Skin	1	—	—
„ Eye	2	—	—
„ Heart.....	1	—	—
„ Kidneys.....	1	1	—
„ Uterus	1	—	—
Abscesses	4	—	—
Scald	1	1	—
Febricula	12	—	—
Unclassified	12	—	—
	<u>102</u>	<u>26</u>	<u>8</u>

CITY HOSPITAL SOUTH, GRAFTON STREET.

Visiting Physician, Dr. N. E. ROBERTS.
Resident Physician, Dr. A. W. TUXFORD.

DISEASE.	In Hospital 31st Dec., 1898.	Admissions, 1899.	Total under Treatment 1899.	Discharged to Homes	Transfers to Parkhill	Transfers to New Ferry	Transfers to Netherfield Road	Transfers to other Hospitals	Deaths	Mortality per cent. of Admissions 1899.	In Hospital 31st Dec., 1899.
Scarlatina	42	376	418	108	187	50	—	—	32	8·5	41
Enteric Fever.....	32	164	196	143	—	—	2	1	23	14·0	27
Typhus Fever.....	—	5	5	—	—	—	5	—	—	—	—
Diphtheria	7	180	187	54	79	—	—	—	44	24·4	10
Measles	—	3	3	—	1	—	—	1	1	33·3	—
Other Diseases	—	28	28	13	1	—	—	2	9	32·0	3
Totals	81	756	837	318	268	50	7	4	109	14·4	81

SCARLATINA.

	AGE PERIODS.						
	Under 5	5—10	10—20	20—30	30—40	40—50	Totals.
No. of Cases	124	171	59	13	8	1	376
No. of Deaths	24	8	—	—	—	—	32
Percentage of Deaths...	19·3	4·6	—	—	—	—	8·5

ENTERIC FEVER.

	AGE PERIODS.						
	Under 5	5—10	10—20	20—30	30—40	40—50	Totals.
No. of Cases	16	29	60	33	22	4	164
No. of Deaths	1	2	5	7	8	—	23
Percentage of Deaths...	6·2	6·9	8·3	21·2	36·3	—	14·0

DIPHTHERIA.

	AGE PERIODS.						Totals.
	Under 5	5—10	10—20	20—30	30—40	40—50	
No. of Cases	73	58	30	13	5	1	180
No. of Deaths	24	19	—	—	—	1	44
Percentage of Deaths...	32·8	32·7	—	—	—	100	24·4

	Cases.	Deaths.
TYPHUS FEVER	5	—
MEASLES	3	1

OTHER DISEASES.

	Cases.	Deaths.
Pneumonia	7	1
Bronchitis	1	1
Phthisis	1	1
Meningitis	2	1
Carcinoma of Liver	1	1
Dysentery	1	1
Cancerum Oris	1	1
Alcoholism.....	1	1
Influenza	3	1
Endocarditis	2	—
Tonsillitis	1	—
Mastoid Abscess	1	—
Malaria	4	—
Heat-stroke	1	—
Malaise	1	—
	<u>28</u>	<u>9=32 per cent.</u>

CITY HOSPITAL, PARK HILL.

Visiting Physician, Dr. N. E. ROBERTS.

Resident Physician, Dr. C. J. LINTON PALMER.

DISEASES.	Remaining in Hospital on December 31st, 1898.	Patients admitted during 1899.						Remaining in Hospital on December 31st, 1899.	Total number under treat- ment during 1899.	Fatal Acute Cases.		Fatal Transferred Cases.	
		Acute Cases.	From City Hospital, North.	From City Hospital, South.	From City Hospital East.	From City Hospital, Priory Road.	From Port Sanitary Hospital.			Number.	Percentage.	Number.	Percentage.
Scarlet Fever	78	469	199	187	15	21	9	123	*978	40	8·5	2	·4
Diphtheria	6	81	—	79	—	—	—	6	166	12	14·8	2	2·5
Measles	—	9	—	1	—	—	—	3	10	1	11·1		
Typhus	—	—	7	—	—	—	—	6	7	—	—	—	—
Small Pox	1	1	—	—	—	—	—	—	2	—	—	—	—
*Other Diseases	—	2	—	1	—	—	—	—	3	—	—	—	—
Total	85	562	206	268	15	21	9	138	1,166	53	9·4	4	·7

* Include 1 Pneumonia, acute ; 1 Varicella ; both recovered.

ACUTE SCARLET FEVER.

	AGE PERIODS.						
	Under 5	5—10	10—20	20—30	30—40	Up- wards.	Total.
No. of cases	169	187	77	29	6	1	469
No. of deaths	30	9	1	—	—	—	40
Percentage of deaths ...	11·1	4·8	1·4	—	—	—	8·5

ACUTE DIPHTHERIA.

	AGE PERIODS.						
	Under 5	5—10	10—20	20—30	30—40	Up-wards.	Totals.
No. of cases	30	28	14	6	2	1	81
No. of deaths	8	4	—	—	—	—	12
Percentage of deaths...	26·6	14·2	—	—	—	—	14·8

CITY HOSPITAL EAST, MILL LANE.

Visiting Physician, DR. RICHARDSON.

DISEASES.	Remaining in Hospital 31st Dec., 1898.	Admitted into Hospital during 1899.	Total under Treatment during 1899.	Died	Discharged to homes	Sent to Parkhill.	Sent to New Ferry.	Remaining at 31st Dec., 1899.	Mortality % of Admissions.
Scarlet Fever	23	169	192	15	131	15	4	27	8·8
Typhoid Fever	9	87	96	18	66	—	—	12	20·6
Other Diseases	—	11	11	4	6	—	—	1	36·3
Totals.....	32	267	299	37	203	15	4	40	13·8

Mortality per cent. *under treatment*, Typhoid 18·7, Scarlet 7·7.

17 of the deaths took place within one week of admission, that is 45·9 per cent.
of the total deaths.

SCARLET FEVER.

	AGE PERIODS.							
	Under 5	5—10	10—20	20—30	30—40	40—50	50 Upwards	Total.
No. of Cases.....	53	83	25	8	—	—	—	169
No. of Deaths.....	12	2	1	—	—	—	—	15
Percentage of Deaths	22·6	2·4	4·0	—	—	—	—	8·8

Three died within 48 hours of admission.

TYPHOID FEVER.

	AGE PERIODS.							
	Under 5	5—10	10—20	20—30	30—40	40—50	50 Upwards	Total.
No. of Cases.....	1	13	31	22	14	6	—	87
No. of Deaths.....	—	—	3	7	4	4	—	18
Percentage of Deaths	—	—	9·6	31·8	28·5	66·6	—	20·6

Three died within 48 hours of admission.

OTHER DISEASES.

	Cases.	Deaths.
Dentition	1	—
Pneumonia	2	—
Broncho-pneumonia	1	—
Capillary Bronchitis	1	1
Influenza	2	—
Meningitis.....	2	2
Abscess of Ear, Meningitis and Convulsions.....	1	1
Febricula	1	—
Total	11	4=36·3 per cent.

CITY HOSPITAL, PRIORY ROAD.

Visiting Physician, DR. ARCHER.

DISEASE.	Remaining in Hospital, Dec. 31st, 1898.	Admitted during 1899.	Total under treatment, 1899	Discharged to Homes.	Transferred to Parkhill Convalescent.	Transferred to New Ferry Convalescent.	Remaining in Hospital, Dec. 31st, 1899.	Deaths.	Percentage of Deaths.
Scarlatina	31	13	44	12	21	7	—	3	23·0
Smallpox	—	†10	10	9	—	—	—	1	10·
Other Diseases	—	10	10	8	—	—	—	*3	30·0
TOTALS.....	31	33	64	29	21	7	—	7	21·2

* One of the deaths was due to an injury of the head, and was subject to a coroner's enquiry.

† One case transferred from Parkhill.

SCARLATINA.

	AGE PERIODS.				
	Under 5	5—10	10—20	20—30	30—40
No. of cases	7	5	1	—	—
No. of Deaths	2	1	—	—	—

SMALLPOX.

	AGE PERIODS.					
	Under 5	5—10	10—20	20—30	30—40	50
No. of cases	1	—	1	5	2	1
No. of Deaths	—	—	—	*1	—	—

* Unvaccinated.

Investigations in regard to the diagnosis of diphtheria and typhoid fever are made by Professor Boyce, the investigation of the laboratory frequently proving useful in confirming diagnosis in some doubtful cases.

As it is becoming less difficult to make these examinations, it is likely that this method will be employed more extensively.

With regard to diphtheria, the method employed is to send out prepared and sterilised pieces of cotton wool, with which the medical attendant can readily obtain brushings from the suspected membrane of the throat, and send them to the laboratory. At the laboratory they are immediately inoculated on to serum, and on the following day the colonies which develop are examined and a report made.

It is very important in every case where the anti-diphtheritic serum is used that a bacteriological diagnosis should be made.

Diagnosis in typhoid fever may be confirmed by the characteristic reaction which the serum of patients suffering from typhoid fever produces upon typhoid bacilli. Capillary sealed tubes are sent out from the laboratory for collecting the small drop of blood necessary to test the reaction.

It may be mentioned that the Bacteriological Laboratory furnishes every facility to the medical practitioner for making bacteriological investigations, and that a Pathological Diagnosis Society has been formed, the members of which, by the payment of a small annual subscription, have the right of getting specimens examined at the laboratory.

The Committee have provided at each one of the City Hospitals a supply of Antitoxin, which is given to any medical practitioner making application for it.

E. W. HOPE,

MEDICAL OFFICER OF HEALTH.

PUBLIC HEALTH DEPARTMENT,

MUNICIPAL OFFICES,

LIVERPOOL, *5th April*, 1900.

TABLE OF DEATHS

DURING THE YEAR 1899, IN THE URBAN SANITARY DISTRICT OF LIVERPOOL, CLASSIFIED ACCORDING TO DISEASES, AGES, AND LOCALITIES.

(I.) NAMES OF LOCALITIES adopted for the purpose of these Statistics; public institutions being shown as separate localities. DISTRICTS. (a.)		MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.						MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
		At all Ages.	Under 1 Year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 60.	60 and upwards.	(i.)	1 Smallpox.	2 Scarlatina.	3 Diphtheria.	4 Membranous Croup.	Fevers.					10 English Cholera and Cholera Infantum.	11 Erysipelas.	12 Measles.	13 Whooping Cough.	14 Diarrhoea and Dysentery.	15 Rheumatic Fever.	16 Phthisis.	17 Bronchitis, Pneumonia, & Pleurisy.	18 Heart Disease.	19 Influenza.	20 Injuries.	21 All Other Diseases.	22 Total.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
														Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		(b.)	(c.)	(d.)	(e.)	(f.)	(g.)	(h.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</

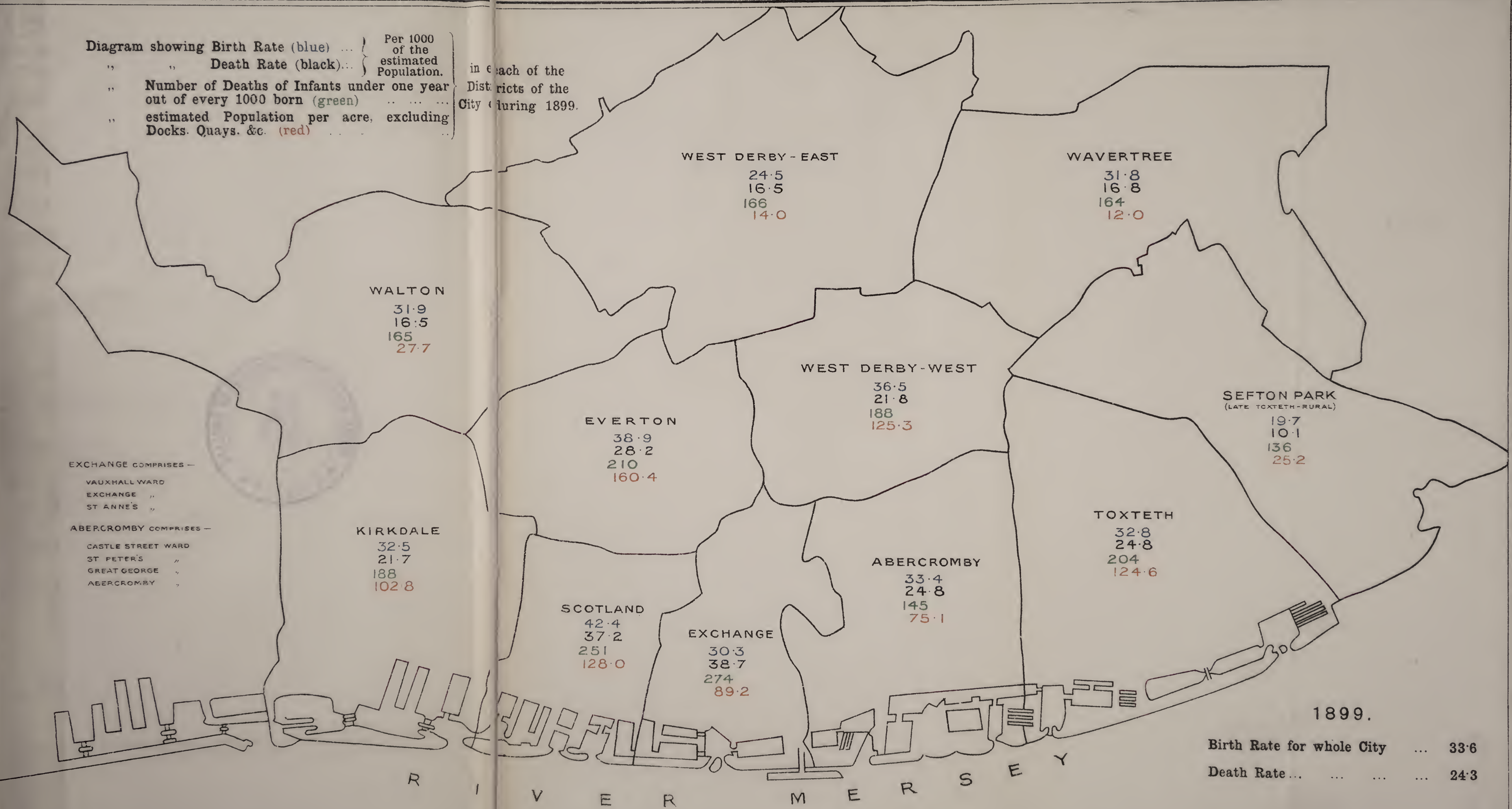
Deaths occurring outside the division or district among persons belonging thereto.....	7	1	2	2	2	Under 5 5 upwards	1	1	2	3	1	6
Deaths occurring within the division or district among persons not belonging thereto.....	592	31	20	12	57	299	173	Under 5 5 upwards	...	...	3	...	...	...	8	...	...	...	...	1	1	...	...	1	11	1	...	2	31	51
									1	...	...	...	...	...	...	...	...	...	...	...	...	5	...	75	72	50	2	27	301	541





CITY OF LIVERPOOL

Diagram showing Birth Rate (blue) ... } Per 1000
 " " Death Rate (black)... } of the
 " " Number of Deaths of Infants under one year } estimated
 " " out of every 1000 born (green) ... } Population.
 " " estimated Population per acre, excluding } in each of the
 " " Docks, Quays, &c. (red) ... } Districts of the
 " " ... } City during 1899.



1899.
 Birth Rate for whole City ... 33.6
 Death Rate ... 24.3

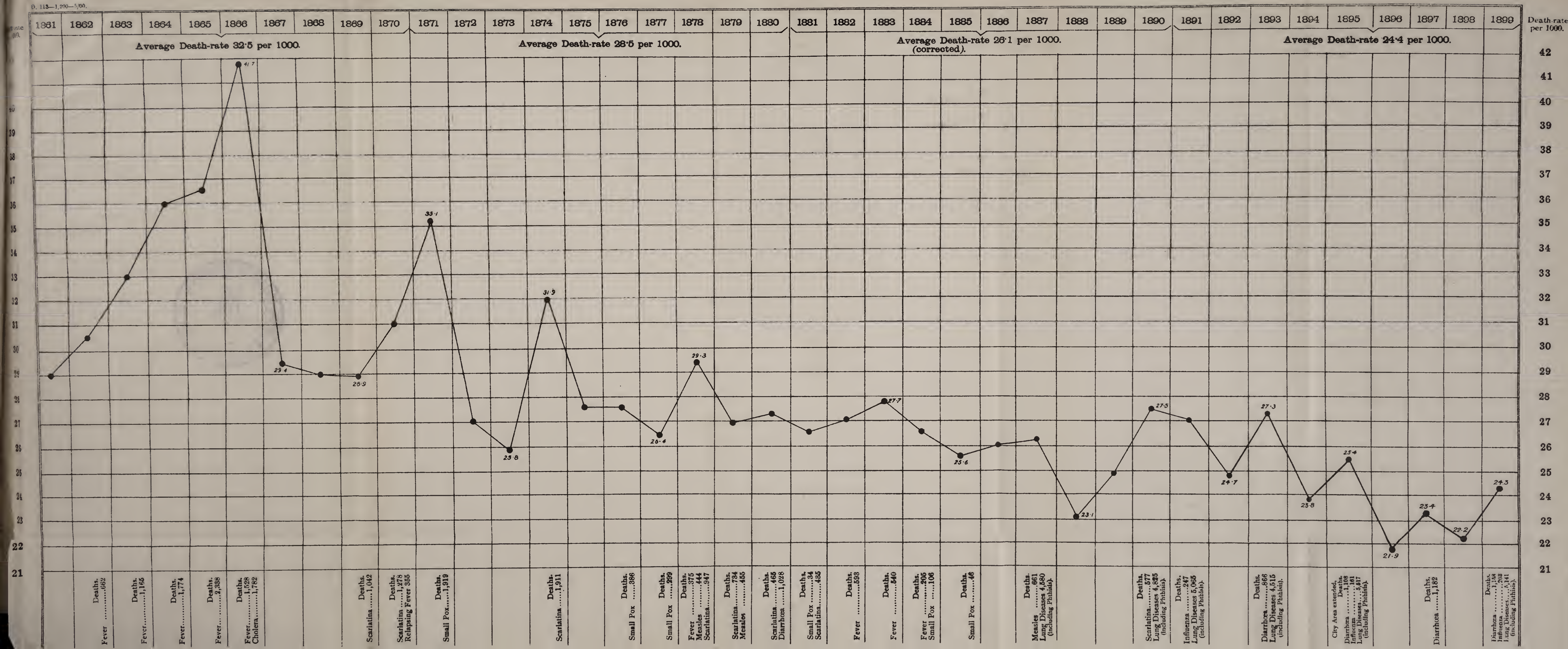
CITY OF LIVERPOOL

Diagram showing Birth Rate (blue)
 Death Rate (black)
 Number of Deaths of Infants under one year
 out of every 1000 born (green)
 estimated Population per acre, excluding
 Dock Quays &c. (1881)
 of the
 estimated
 Population
 per 1000



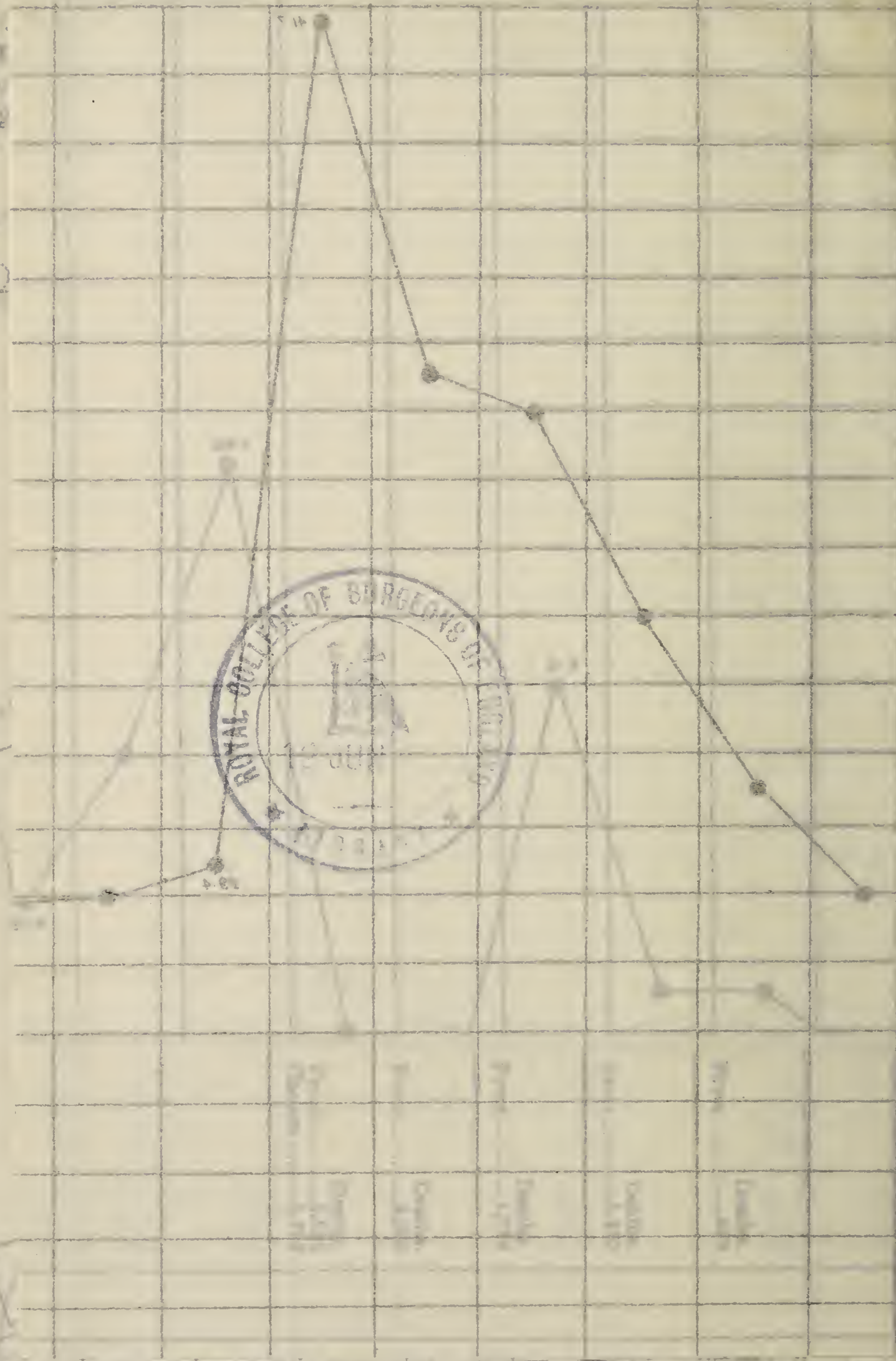
CITY OF LIVERPOOL.

D. 113-1,200-5,000.



1881 1882 1883 1884 1885 1886 1887 1888

Average 1881-1882 82.5 per 1000



DEATHS REGISTERED IN THE CITY OF LIVERPOOL,

DURING THE YEAR ENDING SATURDAY, 30TH DECEMBER, 1899.

CAUSE OF DEATH.		SEX.		AGE-BELOW.															DISTRICTS.															PUBLIC INSTITUTIONS.															CITY OF LIVERPOOL.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Male.	Female.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	9



PHILIPS' NEW PLAN OF
GREATER LIVERPOOL

Indicating Districts referred to in Report.

SCALE OF ONE MILE.

The Map is divided into half-mile squares.



DISTRICTS.

- 1. SCOTLAND
- 2. EXCHANGE
- 3. ABERCROMBY
- 4. EVERTON
- 5. KIRKDALE
- 6. WEST DERBY—WEST
- 7. TOXTETH
- 8. WALTON
- 9. WEST DERBY—EAST
- 10. WAVERTREE
- 11. SEFTON PARK
- (LATE TOXTETH—RURAL)

GREATER

